



**U. S.
NAVY**

Medicine



April 1974

UNITED STATES NAVY MEDICINE

Vol. 63

April 1974

No. 4

Vice Admiral D. L. Custis MC USN
Surgeon General

Rear Admiral H. S. Etter MC USN
Deputy Surgeon General

Captain M. T. Lynch MC USN, Editor

Mrs. Virginia M. Novinski, Assistant Editor

Sylvia W. Shaffer, Managing Editor

Mrs. S. B. Hannan, Graphic Arts

Contributing Editors

Psychiatry . . . CAPT R.E. Strange MC USN

Nurse Corps . . . CAPT E.M. Pfeffer NC USN

Legal . . . LCDR J.W. Kercheval II, JAGC USN

Fleet Support . . . CAPT J.W. Johnson MC USN

Naval Reserve . . . CAPT W.A. Johnson MC USN

Dental Corps . . . CAPT R.H. Howard DC USN

Head and Neck . . . CAPT R.W. Cantrell MC USN

Gastroenterology . . . CAPT D.O. Castell MC USN

Research Medicine . . . CAPT C.E. Brodine MC USN

Submarine Medicine . . . CAPT J.H. Baker MC USN

Radiation Medicine . . . CAPT J.H. Dowling MSC USN

Marine Corps Medicine . . . CAPT D.R. Hauler MC USN

Preventive Medicine . . . CAPT C.E. Alexander MC USN

Aerospace Medicine . . . CAPT F.H. Austin, Jr. MC USN

Occupational Medicine . . . CAPT G.M. Lawton MC USN

Medical Service Corps . . . LCDR F.E. Bennett MSC USN

POLICY

U.S. NAVY MEDICINE is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry and allied sciences. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article, in its original form. The opinions and conclusions expressed in the articles or items included herein are those of the respective authors and do not necessarily represent the views of the Department of the Navy, the Bureau of Medicine and Surgery or any other governmental department or agency thereof.

DISTRIBUTION

U.S. NAVY MEDICINE is distributed to active duty Medical Dept. officers via the Standard Navy Distribution List (SNDL) vice personal addresses. Requests to increase/decrease the number of allotted copies are forwarded via the local command to *U.S. NAVY MEDICINE*, Code 18, Bureau of Medicine and Surgery, Washington, D.C. 20372.

Retired and Reserve officers on inactive duty may subscribe by forwarding request with full name, rank, corps, status, address and zip code.

Notification of address changes should be forwarded together with a recent mailing label.

See inside back cover for additional information.

The issuance of this publication approved in accordance with NAVEXOS P-35.

NAVMED P-5088

C O N T E N T S

FROM THE CHIEF	2	LETTERS TO THE EDITOR.....	35
GREETINGS TO NAVY DENTAL TECHNICIANS.....	4	NOTES AND ANNOUNCEMENTS	
FLAG OFFICER SELECTION.....	8	FDA to Correct Digoxin Problems	13
BUMED SITREP	10	FDA Renews Warning on Erythromycin Estate	15
FEATURE ARTICLES		FDA Approves Propranolol in Angina Pectoris . . .	21
Twenty-six Years of Achievement	5	Retarded Children Get Helping Hand	24
Pediatric Surgical Outpatient Unit — Naval Hospital Portsmouth, Va.	12	The Family Practitioner Specialist	37
Relaxation and Suggestion in Children's Dentistry	14	New ASD(H&E) — Dr. James R. Cowan	37
<i>LCDR S.M. Bernick, DC, USNR-R</i>		RADM Alene B. Duerk Reappointed Director, Navy Nurse Corps.....	38
Submarine and Diving Personnel Longitudinal Health Study	16	BUMED Comptroller Retires: Mr. Hickey Lauded	39
<i>LT W.A. Tansey, MC, USNR</i>		New Officer Fitness Report.....	39
New Dispensary at Keflavik Naval Station	22	Medline Terminals Approved for Five Medical Facilities	40
PROFESSIONAL PAPERS		Prospective Independent-Duty Hospital Corpsmen Tour Ship.....	40
The Gastroenterologists' Corner — Lymphoid Hyperplasia of the Small Bowel Associated with <i>G. lamblia</i> Infection	19	Two New College Programs	40
<i>LCDR J.O. Meadows, MC, USNR</i>		Integration of Navy Women.....	41
Energy Metabolism and Weight Control.....	25	Medical Education Costs Surveyed	41
<i>LTJG S.R. Lamar, MSC, USN</i>		Just Browsing	42
		American Society for Medical Technology — New Orleans Meeting	43
		Official Instructions and Directives	43
		Secretary of Navy Urges All to Vote.....	44

Credits: All pictures are Official U.S. Navy Photographs unless otherwise indicated.

In honor of National Volunteer Week (April 21-27), our front cover features two comely Junior Army-Navy Guild Organization (JANGO) members entertaining a wee one on the pediatric ward at the National Naval Medical Center, Bethesda, Md. The Navy Medical Dept. has long relied upon the unselfish service of the volunteers who augment the staff of many of our medical facilities. (More on this next month)

The photo on page 2 reveals the Surgeon General VADM D.L. Custis, MC, USN (left) viewing new X-ray equipment with CAPT Vernon A. Burkhart, MC, USN (right), CO, Nav Hosp New London. VADM Custis was the guest of honor present when the new medical facility at New London, Conn., was dedicated in Jan 1974.

The continued support of the Illustrations & Exhibits, and the Photography Divisions of the Media Department, Naval Medical Training Institute, NNMC, Bethesda, Md., is gratefully acknowledged.



from the Chief

In these busy times of turmoil and preoccupation with tomorrow's profile, it would seem that an age of discontinuity has indeed overtaken us. There are those, who, in their frenzied concern for tomorrow have outraged their heritage to a point of disconnect with yesterday's norms and convictions.

Birthdays are for looking back. May we in Navy Medicine never lose such perspective. Our legacy is old and rich, and worthy of continuity. Peter Drucker notwithstanding, we are all inheritors and can no more shed our past than we can slough our skins.

We are free to make the most of what we have in the now-time at our disposal. We can strive to mold our prospectus and believe we have discovered tomorrow, but tomorrow is still growing out of all our yesterdays.

We celebrate our 103rd anniversary, but actually are as old as the country itself. Our illegitimate history really began in 1775 when John Harrison, a young Naval surgeon reported for duty on board the sloop "Alfred," the first war ship to fly the Grand Union flag, skippered by a captain also of dubious lineage, named John Paul Jones.

Ever since then we've been there, serving with the Marines and the men who follow the sea. We were with the fleet off the Barbary coast,

The above excerpts were taken from an address given by VADM Custis, MC, USN at the Reception honoring the 103rd birthday of the Navy Medical Corps, at the Officers Club, National Naval Medical Center, Bethesda, Md., on 8 March 1974.

with Perry on Lake Erie, at the battle of New Orleans, and with the Marines at Montezuma.

While they always took us along in those early days, their estimate of our worth was at times ambivalent. Consider the following:

"As for the surgeon's performance on arms and legs, he does it after a way, 'tis true; but, betwixt you and me the slaughterhouse would scarce grant him their journey-man's wages. The poorest patients are sure to fare best where he is, because he leaves them to nature, the least dangerous doctor of the two."—Ned Ward—On the Typical 18th Century Naval Surgeon.

"Whenever the surgeon is ignorant of a sailor's complaint, he first takes a little blood from him, then gives him an emetic and a cathartic to which he may add a blister. This serves, at least, to diminish the number of his patients."—Author unknown, 1782.

An admiral who had lost an arm and a leg had this to say: "The greatest thing in all military service is health. God bless the Naval surgeon."—Horatio Nelson, 1803.

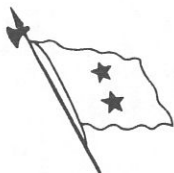
His contemporary, exiled on St. Helena, could not agree. "You surgeons will have more lives to answer for in the other world than even we generals."—Napoleon Bonaparte.

But it took Billy Bones of "Treasure Island" to say it most succinctly: "Doctors is all swabs." To which I would add, "But not all swabs is doctors."

* * * * *

Respected historians admonish those, who, ignorant of the past, would presume to resolve present dilemmas. In celebrating the 103rd anniversary of the Navy Medical Corps, and in a ceaseless striving to improve upon the delivery of medical care in the U.S. Navy, may we never be guilty of that indictment. May the quality of our performance accurately reflect the depth of our affection for, and personal commitment to the United States Navy, and its Medical Corps.





DEPARTMENT OF THE NAVY
ASSISTANT CHIEF OF THE BUREAU OF MEDICINE AND SURGERY FOR DENTISTRY
AND
CHIEF OF THE DENTAL DIVISION
WASHINGTON, D.C. 20372

NAVY DENTAL TECHNICIANS

April 2, 1948-1974

It gives me great pleasure to extend to all of you congratulations and best wishes on the occasion of the Twenty-sixth Anniversary of the Dental Technician Rating.

Through the years, you have met the challenges offered and have established a record of valor and devotion to duty that has earned the respect and admiration of us all.

Together, we are charged with the responsibility for the health and well being of the men and women who serve on our Nation's first line of defense. You serve with distinction in keeping the Navy and Marine Corps personnel fit to perform their duties on land, in the air, and in ships.

The future looks bright for challenging, expanding career opportunities for Dental Technicians and for satisfying professional growth.

You are assured of the Dental Corps' support as we contemplate and implement innovative training programs and career pathways for our "right hand," the Dental Technician of the Navy.


R. W. ELLIOTT, Jr.
Rear Admiral, DC, USN



TWENTY-SIX YEARS OF ACHIEVEMENT

Dental technicians — the valued “right hands” of the Navy Dental Corps — celebrate their 26th anniversary on 2 April 1974. But it will be “business as usual” that day in Naval dental facilities around the world. Advances in dental care and treatment are being made so quickly that there is little time for any of these dedicated men and women to pause and look back.

US Navy Medicine has been proud to chronicle the progress and development of the Navy’s dental technicians through the years. On this page we present a historical salute to these outstanding members of our health care team.

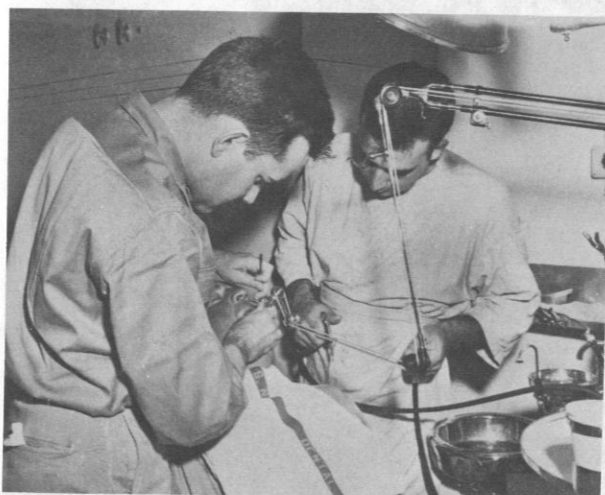
We’re putting our teeth in the right hands. There’s no doubt about it.



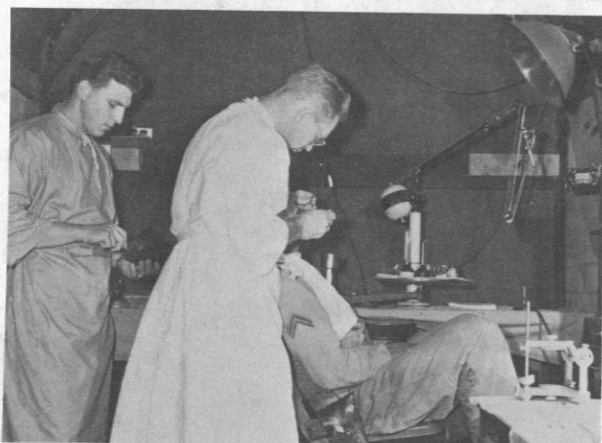
THE WAY WE WERE.—In 1945 LCDR William H. Lieser, DC, USN (standing), a prosthetic dental officer, supervised assistants in the Prosthetic Laboratory at Naval Air Station Dispensary, Olathe, Kans. Three more years were to pass before enlisted personnel of the Navy were to wear a dental rating badge.



EARLY YEARS.—Dental technicians once learned their skills in this prosthetic laboratory at the U.S. Naval Training School, Great Lakes, Ill.



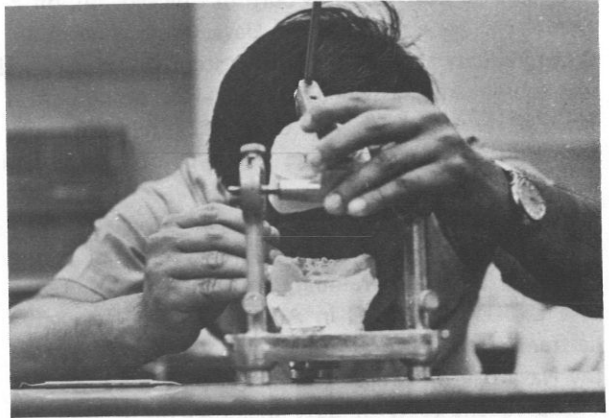
USS SICILY.—LTJG Emile J. Charvet, Jr., DC, USNR (left) and DT2 Louis Cinfici (right) provide dental care for LCDR Max C. Miller, USNR. The setting is the dental laboratory located below the flight deck of the USS *Sicily*. The year is 1950.



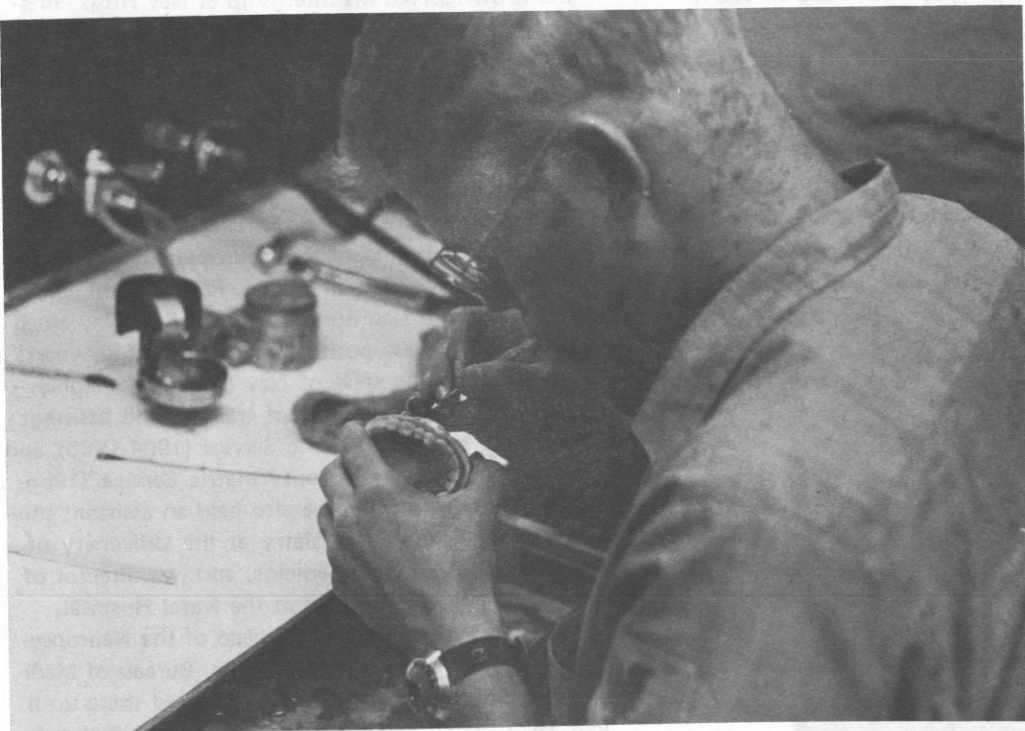
FRONT LINE DENTISTRY.—The interior of a canvas-covered truck was used as a dental prosthetic unit at the First Marine Division regimental reserve area in Korea in 1952. Here plaster impressions are being made before a patient is fitted with dentures.



PROSTHETIC EXPERT.—In 1962, DT1 Von H. Slay, an advanced dental prosthetic technician, brought his skills to the U.S. Naval Dental Clinic in London, England.



CLOSE-UP.—DT2 Rodney Oshiro moves in tight while working with an articulator. This work is being done in the new Prosthetic Clinic opened at Camp Butler, Okinawa, in 1973. The clinic provides dental prostheses for personnel of the Third Marine Division and U.S. Marine Corps Base Camp Butler. (USMC photo by LCpl J. Bohanan).



ARTIST'S TOUCH.—DT2 Ben Gifford, assigned to the Dental and Prosthetic Clinic at Camp Butler, Okinawa, trims the wax on dentures to give them proper appearance. The Camp Butler Prosthetic Clinic opened in 1973. (PAO Third Marine Division, Camp Butler, Okinawa.)

Flag Officer Selection

George A. Besbekos was born in Chicago, Ill., on 2 Dec 1924. He enlisted in the Naval Reserve while an undergraduate student at Northwestern University, and was subsequently assigned to the V-12 training unit at Northwestern in Jul 1943. Upon being released to inactive duty in Dec 1945, he was appointed an ensign in the Naval Reserve.

CAPT Besbekos graduated from Northwestern University Dental School in Jun 1947, and reported to the Naval Air Technical Training Center in Memphis, Tenn., as a LTJG, DC, USNR in Aug 1947. One year later, he transferred to the Regular Navy while stationed at the Naval Air Technical Training Unit, Olathe, Kans.

Subsequent tours of duty included the USS *Orion* (AS-18), 7th Engineer Battalion (FMF), and San Francisco Naval Shipyard. In Jun 1953, he completed the general postgraduate course at the Naval Dental School, Bethesda, Md., and reported to Naval Station, Norfolk, Va. He then served on the staff in the USS *Macon* (CA-132) from 1953 to 1955; at the Naval Academy, Annapolis, Md., from 1955 to 1959; and in the USS *Saratoga* (CVA-60) from 1959 to 1961.

In 1961 CAPT Besbekos joined the medical staff at the Marine Corps Air Station at Cherry Point, N.C., departing three years later to undertake a course of study at the College of Naval Command and Staff, Naval War College. In 1965 he arrived at the Bureau of Medicine and Surgery to serve as head of the Planning and Logistics Branch of the Dental Division (1966-1967).

From 1967 to 1970, CAPT Besbekos was a member of the staff at US Naval Station Roosevelt Roads,

Puerto Rico, following which he became Executive Officer of the Naval Dental Clinic in Charleston, S.C., (1970-1972). In Jun 1972, CAPT Besbekos assumed his current position as Commanding Officer, Naval Dental Clinic Charleston and District Dental Officer, Sixth Naval District.

CAPT Besbekos is a member of the American Dental Association and the American Association of Endodontists. He wears the American Campaign Medal, World War II Victory Medal, Navy Occupation Service Medal with Europe Clasp, and National Defense Service Medal with Bronze Star.

D. Earl Brown, Jr., was born in Berryville, Va., on 10 Apr 1928. He completed his undergraduate work at Washington and Lee University, Lexington, Va., in 1949, and earned his medical doctorate in 1953 at the Medical College of Virginia in Richmond. Following his graduation from medical school, he accepted a commission in the Navy Medical Corps.

Dr. Brown served his internship at Nav Hosp Portsmouth, Va., between 1953 and 1954. He then attended the Naval School of Aviation Medicine, Pensacola, Fla., earning the gold wings of a Navy flight surgeon. From 1955 to 1957, he was a flight surgeon at NAS Milton, Fla., following which he served on the staff at Nav Hosp Bethesda, Md., as a resident in neuropsychiatry. After completing his training in 1960, Dr. Brown filled the dual roles of chief of the Neuropsychiatric Unit at the Marine Corps Recruit Depot, Parris Island, S.C.; and chief of the Neuropsychiatric Service, Nav Hosp Beaufort, S.C.; these positions he held for four years. He then joined the staff of Nav Hosp Philadelphia, Pa., serving first as director of training and assistant chief of the Neuropsychiatric Service (1964-1965), and later as chief of the Neuropsychiatric Service (1965-1970). During that time he also held an assistant professorship in clinical psychiatry at the University of Pennsylvania School of Medicine, and was director of the Intern Training Program at the Naval Hospital.

In 1970, Dr. Brown became head of the Neuropsychiatry Branch, Professional Division, Bureau of Medicine and Surgery Code 313. He remained there until Feb 1973, when he returned to Nav Hosp Bethesda, this time as Commanding Officer. Six months later, he assumed his current position as Deputy Commanding



CAPT George A. Besbekos, DC, USN



CAPT D. Earl Brown, Jr., MC, USN

Officer and Director of Professional Services for the National Naval Medical Center, Bethesda.

Dr. Brown adds to his distinguished background a wide array of professional appointments and membership in medical societies. He is certified in psychiatry by the American Board of Psychiatry and Neurology. He is a Fellow of the American Psychiatric Association and the American College of Physicians, and holds membership in the American Medical Association, the American College of Psychiatrists, the World Psychiatric Association, the Aerospace Medical Association, and the Association of Military Surgeons of the United States, to name a few.

CAPT Brown is consultant to the Navy Medical Neuropsychiatric Research Unit, San Diego, Calif., and is a member of the Committee on Publications of the American College of Psychiatrists. He previously was consultant to the Committee on Governmental Agencies, Group for the Advance of Psychiatry, Inc.; and was a member of the Section of Military Psychiatry of the World Psychiatric Association, and the Federal Government Health Services Committee of the American Psychiatric Association.

CAPT Brown holds the Meritorious Service Medal, Navy Commendation Medal, National Defense Service Medal with Bronze Star, and the Vietnam Campaign Medal with Bronze Star.

Henry A. Sparks was born in Woodland, Calif., on 22 Nov 1924. He enlisted in the U.S. Naval Reserve on 24 Sep 1942, and attended Placer Junior College, Auburn, Calif. On 1 Jul 1943, he reported for active duty as a student at the College of the Pacific, Stockton, Calif. He was honorably released from active duty on 6 Jan 1946.

On 11 Jun 1946 he was commissioned an ensign in the Naval Reserve. Under Navy sponsorship, he at-

tended the University of California Medical School at Los Angeles, receiving his M.D. degree in 1949. That same year, he transferred from the Reserves to the Regular Navy.

CAPT Sparks was an intern and resident in internal medicine at Nav Hosp Long Beach, Calif., from 1948 to 1950, following which he became a member of the staff at Nav Hosp San Diego, Calif. In Aug 1950 he reported for duty with the U.S. Fleet Activities, Yokosuka, Japan, and in December of that year joined Mobile Surgical Team Number ONE. In May 1951 he returned to the United States for a residency in internal medicine and duty at the Naval Hospital, National Naval Medical Center, Bethesda, Md.

In April 1954, CAPT Sparks joined the staff of the Commander in Chief, U.S. Atlantic Fleet. He completed a second tour of duty at Nav Hosp San Diego (1955-1958), following which he served as a cardiologist at Naval Medical Unit, Tripler Army Hospital, Oahu, Hawaii (1958-1960). From 1960 to 1963 he was a member of the staff of Nav Hosp Camp Pendleton, Calif., after which he returned to Nav Hosp Bethesda as supervisor of the Internal Medicine Training Program and assistant chief of medicine (1963-1966). Dr. Sparks became chief of the Medical Service at Nav Hosp Oakland, Calif., in 1966. He assumed his present position as Commanding Officer of Naval Medical Research Unit THREE, Cairo, United Arab Republic, in Jun 1970.

In addition to the Navy Unit Commendation Ribbon awarded Task Element NINETY point THIRTY-TWO for outstanding service in the Korean area of hostilities, CAPT Sparks holds the American Campaign Medal, World War II Victory Medal, Navy Occupation Service Medal with Asia Clasp, National Defense Service Medal, Korean Service Medal, and the United Nations Service Medal.



CAPT Henry A. Sparks, MC, USN

CIVILIAN CEILING POINTS

Administrative limits on civilian staffing will yield to legislative limits on civilian staffing in FY-75. Previously, civilian ceilings were determined by the budget process . . . administratively set by DOD directive . . . ceiling notice by Office of the Chief of Naval Operations (OPNAV), in coordination with the Office of Civilian Manpower Management (OCMM).

In FY-75 ceilings will be set by CIVPERS Public Law 93-155: Congress will authorize end strength as of the end of each fiscal year, for civilian personnel for each component of the DOD. No funds will be appropriated for any fiscal year for the civilian component of DOD, unless the end strength for civilian personnel of that component for that fiscal year has been authorized by law.

If the timing parallels that of the budget, expect to receive official ceiling late in the FY . . . Careful monitoring of civilian employment levels in early FY will be required to avoid Reductions in Force (RIFs) in late FY.

NEOCS AND THE LABORATORY COMMUNITY

New structure of the Laboratory community for manning and training parallels the future proposals of NEOCS (Navy Enlisted Occupation Classification Study). E-7 and E-6 levels now top-heavy. Inverse manning at the ceiling level expected to reverse downward in the near future . . . HM-8414 billets converted to HM-8507; 200+ HM-8506 billets converted to HM-8501.

Training input for two prior years + 8506/8501 graduates and trainees for FY-75 will hopefully allow for realignment of manning at senior levels.

Direct Procurement Petty Officer (DPPO) program offers additional source of medical technologists . . . prerequisite education of three years required.

EQUAL OPPORTUNITY ASSISTANT

Effective in Feb 1974, LTJG Richard B. Sison, MSC, USN assumed position of Equal Opportunity Assistant at BUMED (Code 16).

FAMILY PRACTICE SPECIALISTS NOT GMOs

As fully trained specialists, Family Practitioners are being improperly utilized in some quarters as General Medical Officers (GMOs). Abuse of the concept of Family Practice within the Navy is counterproductive and not to be condoned. Family Practitioners must be allowed to develop a patient population compatible with the limitations of comprehensive care.

HOUSE APPROPRIATIONS COMMITTEE INVESTIGATES

Seeking considerable detailed information, at BUMED and through on-site visits, teams of staff investigators for the House Appropriations Committee are

closely studying construction projects for NNMC Bethesda, San Diego, and Pendleton areas Teams are astute and objective.

We build to requirements, not fluctuating staff assets.

NAVAL AVIATION BIOMEDICINE/HUMAN EFFECTIVENESS

Technical Workshop convened by BUMED in FY-74 to review Navy RDT&E program in support of aviation biomedicine, human effectiveness, and aircrew life support systems generated an excellent published report distributed last month. Published findings included recommended objectives and priorities for future research and development to meet the needs of the operational Navy.

NAVAL RESERVE DENTAL SEMINAR

Reserve dental officers from the FIRST, THIRD, FOURTH, FIFTH, SIXTH, EIGHTH, and NINTH Naval Districts attended Naval Reserve Dental Indoctrination and Orientation Seminar conducted at BUMED on 18-22 Mar . . . to provide indoctrination and orientation in the organization, administration, and operation of the Navy Dental Corps, and to acquaint inactive-duty Naval Reserve dental officers (especially COs of Naval Reserve Dental Companies) with current pertinent concepts, policies and trends . . . emphasis placed on the Dental Corps Reserve Program.

One innovation this year was the one-day workshop to identify, discuss, and make recommendations concerning problem areas in the Reserve Program.

FLEET MEDICAL/DENTAL SUPPORT SHIP

BUMED has evaluated the need for fleet medical support Additional medical-support capability is deemed necessary to support contingency plans.

Recommendations to the Naval Material Command Shipbuilding Council will also include request for approval and funding of the continuation of the hospital ship study . . . to include cost and capability trade-offs for 1000-, 750-, and 500-bed hospital ships; use of modular facilities in a subsidized merchant ship; conversion of an aircraft or cargo transport ship, and; construction of a Fleet Medical Support Ship.

NATIONAL VOLUNTEER WEEK

During National Volunteer Week, 21-27 April, the unselfish service of many volunteers who augment the staff of many Naval medical facilities should be particularly noted and appreciated.

GO — NO GO NAVY

DOD will decide upon Biomedical Sciences program at Naval Academy — to continue or discontinue. ☸

PEDIATRIC SURGICAL OUTPATIENT UNIT

Naval Hospital Portsmouth, Va.

The Navy's first pediatric outpatient surgical unit, dedicated at Nav Hosp Portsmouth, Va., on 10 Dec 1973, has eliminated the need for many young children to remain overnight in the hospital without their



OPENING DAY.—Members of the staff of Nav Hosp Portsmouth, Va., cut the ribbon to open the Navy's first pediatric outpatient surgical unit. From left to right are: LT Nancy L. Protsman, NC, USN, charge nurse on Ward 3-D; CAPT Joseph T. Mullen, MC, USN, chief of surgery; RADM Willard P. Arentzen, MC, USN, CO; CDR Frank E. Ehrlich, MC, USN, chief of pediatric surgery; and CDR Joan C. Bynum, NC, USN, nursing supervisor of Pediatric Surgical Service.



READY FOR BUSINESS.—The pediatric outpatient surgical unit is made up of cubicles, each of which can accommodate any combination of four beds or cribs. Inspecting the new facility on opening day are (left to right): CDR Frank E. Ehrlich, MC, USN; RADM Willard P. Arentzen, MC, USN; and CAPT Joseph T. Mullen, MC, USN.

parents. The new unit reflects an emerging trend in the medical community to care for pediatric surgical patients in one-day outpatient care facilities whenever possible.

According to CDR Frank E. Ehrlich, MC, USN, head of the hospital's Pediatric Surgical Service, the unit can be used for any child whose operation does not dictate overnight hospitalization. Certain criteria must be met before a child is admitted to the unit: (1) The planned surgery should be done in a short period of time, (2) Postoperative bleeding must not be a risk, (3) There should be no chance of respiratory difficulty or complications that the parents cannot handle, and; (4) The physician must be guaranteed that the child will not eat or drink after midnight of the night before surgery.

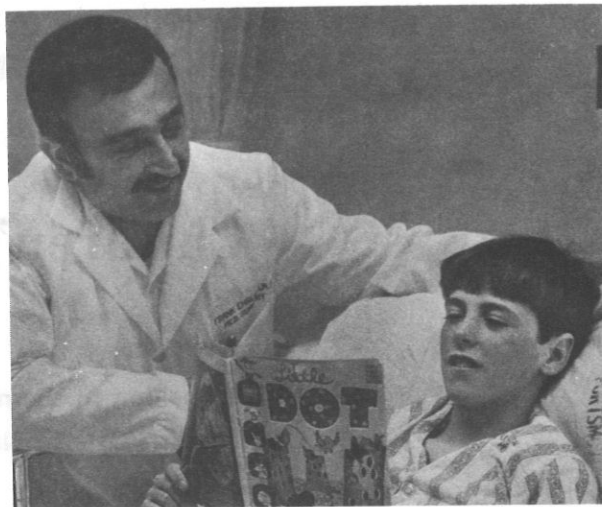
Early in the morning on the day of scheduled surgery, the pediatric patient is brought to the unit by his parents and placed in a bed or crib which has been prepared the previous night. Appropriate charts and records are already in place, and all preliminary paperwork and testing has been completed prior to the day



A NOT-SO-CHEERFUL GIVER.—Miss A. Harris, a laboratory technician at Nav Hosp Portsmouth, Va., draws blood from Brian LeBlanc prior to his admission to the pediatric outpatient surgical unit. Brian is obviously one young patient who believes in making his feelings known.



NOTHING TO IT.—Mr. and Mrs. Albert R. LeBlanc visit their son, Brian, in the pediatric surgical outpatient unit of Nav Hosp Portsmouth, Va. Brian was admitted to the unit, underwent surgical repair of a hernia, and was discharged, all on the same day.



HEADED FOR HOME.—CDR Frank E. Ehrlich, MC, USN, chief of pediatric surgery at Nav Hosp Portsmouth, Va., finds Brian LeBlanc reading a comic book a few hours after surgery. Brian was hospitalized less than 24 hours for his operation.

of the operation. Immediately after surgery, the child is taken to the recovery room. When his condition is stable, he is returned to the pediatric outpatient surgical unit, where he remains with his parents until his discharge late in the afternoon. Should complications arise, the child will be admitted to the hospital's pediatric surgery ward as an inpatient.

Operations commonly managed in this way include herniorrhaphy, cystoscopy, and some forms of ear surgery. In the absence of live-in facilities for parents,

the outpatient unit can preclude the traumatic experience precipitated by separation of child from parents during overnight hospitalization.

The Portsmouth unit, made up of cubicles which can accommodate any combination of four beds or cribs, serves children up to 12 years of age. CDR Ehrlich estimates that elimination of overnight hospitalization for a pediatric surgery patient can reduce costs 60-80% per patient. —PAO, Naval Regional Medical Center, Portsmouth, Va.

FDA TO CORRECT DIGOXIN PROBLEMS

Improved methods of measuring digoxin blood levels have enabled the Food and Drug Administration (FDA) to determine that some lots of digoxin tablets may provide significantly lower blood levels (i.e., be less bioavailable) than other lots because they are less well absorbed. The FDA is recalling digoxin tablets which do not meet the new standards for dissolution that were established last November by the United States Pharmacopeia. FDA is also instituting a certification program for all manufacturers of digoxin.

Patients now taking a product with low bioavailability will in the future receive tablets of greater (normal) bioavailability. Such patients have an increased risk of developing digoxin intoxication within the first two weeks after the change to new tablets. Pharmacists and physicians are urged to reevaluate the digoxin dosage in such patients.

The FDA also has preliminary information that digitoxin is not necessarily free of bioavailability problems, and is studying this drug. Switching of patients from digoxin to digitoxin (or digitalis leaf) merely to avoid bioavailability problems is therefore not recommended. —FDA *Drug Bulletin*, Jan 1974.

Relaxation and Suggestion in Children's Dentistry

By LCDR Sheldon M. Bernick, DC, USNR-R,*
Commanding Officer, Naval Reserve Dental Company 4-9

Foreign shore and certain designated Naval dental facilities in the U.S. are now providing select dental treatment to dependent children. Children are also seen for emergency care at many other Naval dental facilities. In order to increase a child's acceptance of dental care, the dentist would do well to familiarize himself with the psychologic techniques of relaxation and suggestion.

A young child is usually well behaved in the dental chair, provided he has not been preconditioned by his parents or peers to react with fear. The doctrine, "there are no problem children, only problem parents," is particularly applicable to pediatric dentistry. Success in the management of children depends largely on the skill and personality of the dentist, and the techniques which he uses. As soon as he sees the pediatric patient, the practitioner must learn to quickly judge the child and his ability to cooperate.

Suggestion and relaxation are the hallmarks of most available techniques. These psychological adjuncts are not intended to replace the pharmacologic support contributed by sedative, tranquilizer or narcotic agents, but rather to enable the dentist to obtain the best possible results. Psychologically oriented practitioners find suggestion a highly practical tool for making dentistry easier. Suggestion acts to stimulate positive psychologic mechanisms, and can be used successfully with all patients.

*Assistant Clinical Professor, University of Pennsylvania School of Dental Medicine; Assistant Dentist, Children's Hospital of Philadelphia, and; Consulting Pedodontist, Nav Hosp Philadelphia, Pa. Mailing address: 1230 Burmont Road, Drexel Hill, Penn. 19026.

The opinions and assertions contained in the above article are those of the author and are not to be construed as official, or reflecting the views of the Navy Department or the naval service at large.

CONDITIONING

Suggestion begins prior to the dental appointment, with the mailing of information to parents, providing instruction as to how they may best prepare a child for the impending dental visit. Words such as "hurt and pain" are best avoided. Offer the child encouragement, and couch the preparatory discussion in a pleasant tone.

The memorandum sent out by mail may include the following previsit suggestions for parents: Positive statements before the visit will help the child to understand the treatment better. Never say, "The doctor will not hurt you," or, after an appointment, "Now that didn't hurt much, did it?" Negative suggestion of this kind can only serve to introduce fear association. The memorandum can also give suggestions for oral hygiene, emphasize the advantages of prompt appointments, and stress the importance of having parents remain in the reception room while the child is being seen by the dentist. When patients and parents ultimately arrive at the office, they will, therefore, know what to expect of the doctor and his staff.

The average child above the age of three is able to reason, and his primary dentition is usually complete. Accordingly, we advise that the first visit to the dentist take place shortly after the age of three. Proper instruction at this age should ensure good cooperation.

Every effort should be made to convey the impression to a young patient that he is welcome and understood. In facilities where children are to receive routine treatment, the reception area should offer toys, children's magazines, and child-size furniture. The receptionist should display a pleasant disposition toward children, and should be able to transmit an attitude

of warmth and appreciation for the child's position. The dentist and staff should wear colorful coats and aprons, instead of the usual stark white apparel. The white aseptic appearance is too reminiscent of some adult medical offices or hospitals, and dreaded needles. Bright colors of the dental chair and office walls create the suggestion of cheerfulness; cheerful surroundings are readily associated with a pleasant enterprise.

THE OFFICE EXPERIENCE

On the first visit the dentist should greet the child warmly without hesitation or uncertainty. Explanations given in detail, but in simple language, familiarize the child with equipment and instruments in full view. Such approaches are known as "show-tell-do," and help the staff to gain the confidence of the child.

It helps to establish rapport with the child if the dentist listens, observes, and evaluates before acting. He should use comprehensible words, without talking down to the youngster, keeping him informed of the intended dental actions. Unexpected maneuvers can upset the child and create a difficult problem. The child should be made to feel that he is recognized as an individual, important to the doctor. The dentist should try to fortify the youngster's ego by using suggestion, employing stratagems such as: guessing the child's age, making complimentary remarks about the child's clothes, and praising other noticeable attributes which make the child "feel grown up." All activities and conversations must be patient-centered. All remarks should be directed toward making the child feel accepted and important, and allaying any fears. Here are several useful tactics which illustrate the manner of successful approaches:

1. The explorer is called a "tooth counter"; its function is demonstrated first on the fingernail of the dentist and then of the child, before introducing the instrument into the mouth.

2. The drill is called a "tooth cleaner." It is

similarly demonstrated on the fingernails, after telling the child about the fire-engine noise.

3. A needed injection can be easily accomplished by keeping the syringe out of the line of vision. Use phrases such as "sleepy juice to put the tooth to sleep," so that you can "clean out a hole in the teeth." Rather than alarming the child with the news that you are going to give him a needle, explain that he will feel a quick pinch.

4. In a similar way, other routine dental procedures can be presented to the child, using suggestions and demonstrations that he can understand.

The purpose of these devices (never deceptions) is to educate the child to accept dental care with confidence, and in an attitude of relaxation. Offering some little gift at the end of the visit is a popular gesture that serves to reinforce the positive association.

Children live in a world of fantasy and are very susceptible to suggestion. Their vivid imaginations can be used to great advantage in providing their dental care. Respect for the dentist, and an understanding of the desires of the child are important prerequisites for effecting helpful responses to suggestion. When the dentist is confronted by an unmanageable child, however, an authoritative approach is often required to secure the youngster's attention. Once his attention is obtained, suggestion techniques can be utilized.

THE FOLLOW-THROUGH

Success in promoting the dental health of a child depends upon the interaction of rapport between dentist, staff, child, and parents. Once parents understand that the well-being of the child is the prime concern of the dentist, they will follow through and cooperate with most of the suggestions made. They will usually accept their delegated responsibilities, extending the necessary support to include involvement and continued interest at home, without which the program could fail.

FDA RENEWS WARNING ON ERYTHROMYCIN ESTOLATE

The Food and Drug Administration (FDA) has reaffirmed that erythromycin estolate (Ilosone) involves a definite risk of hepatotoxicity (cholestatic hepatitis). The hepatotoxicity occurs almost exclusively in adults. Use of the drug in adults should therefore be limited to situations in which it is clearly justified.

The FDA has also determined that erythromycins differ in absorption characteristics, and therefore in serum and tissue levels achieved with the same dose. Although it carries the risk of greater toxicity, erythromycin estolate is on the average more fully absorbed and produces more consistent serum levels than other erythromycin salts and erythromycin base. — *FDA Drug Bulletin*, Jan 1974.

Submarine and Diving Personnel Longitudinal Health Study

By **LT William A. Tansey, MC, USNR,**
Naval Submarine Medical Research Laboratory,
Naval Submarine Medical Center,
Groton, Connecticut 06340.

INTRODUCTION

Application of nuclear power to submarines brought about the first completely underwater circumnavigation of the globe in 1961. Since then the Nuclear Power program has developed at an exciting pace. The size of these underwater weapons, their strategic potential, and technological flexibility continue to advance. Life support systems have become increasingly sophisticated so that the physical capability for prolonged submergence continues to improve. Driven by man's unceasing quest to explore the undersea world, engineers are developing miniature submersibles and diving habitats for ever increasing depths, and physiologists are beginning to better understand the extremes of man's physiologic reserve in coping with hyperbaric environments.

In the routine performance of their jobs, many U.S. Navy personnel are exposed to these challenging and confined environments. Yet, to date there has been no single medical group charged with the responsibility for

the development and operation of a longitudinal surveillance system for monitoring both anticipated and unanticipated biological effects. The Longitudinal Health Study is being developed by the Naval Submarine Medical Research Laboratory (NSMRL), Groton, Conn., in response to this need.

The Longitudinal Health Study is a multiphasic screening survey which is at present being applied to a randomly selected portion of the U.S. Navy's submarine and diving communities, by the research staff at NSMRL. The project was conceived in 1966, and has since developed into an ongoing research program funded by the Bureau of Medicine and Surgery. Traditional and experimental health information is collected by physicians and medical technicians, and is tabulated on data cards for computer editing, storage, and ultimately multivariate statistical analysis. While the long-range objective of the project is to identify occupational health trends within two highly specialized populations, submariners and divers, the immediate aim is to identify the incidence of subclinical disease and medical risk factors by the application of multiple test procedures. Both goals constitute a continual effort to improve the health, safety, and well-being of submarine and diving personnel.

The opinions or assertions contained in the above article are those of the author and are not to be construed as official, or necessarily reflecting the views of the Navy Department or the naval service at large.

HISTORY

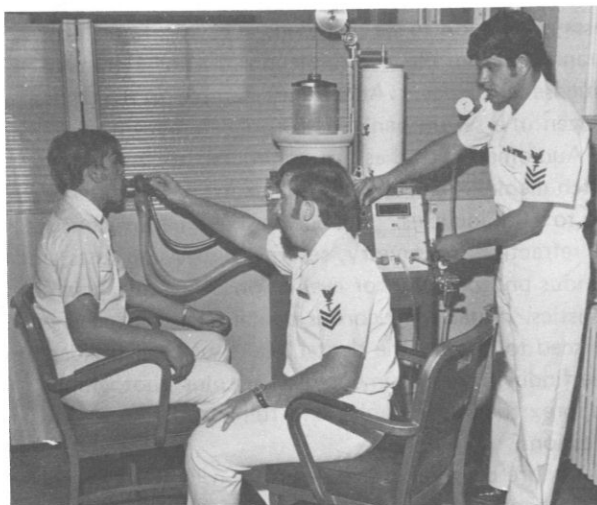
Precedent for this type of research was established in the Navy with the initiation of the Thousand Aviator Study, a health screening program for naval aviators which focused particularly upon cardiovascular changes. A monograph on this study, published in 1965 by the Naval Aerospace Medical Institute (NAMI), described 25 years of continuing periodic medical examinations based upon an increasingly broad spectrum of biologic variables. Motivated by his ancillary association and interest in this NAMI project, the Scientific Director at NSMRL, Dr. Charles F. Gell urged that similar attention be focused upon Navy submariners and divers. A research proposal was formalized in 1967, and with the support of CAPT Joseph Pollard, MC, USN (now Ret.) [a former Director, Research Division, BUMED Code 71], the project was approved and funded with the designation "Longitudinal Health Study."

Assisted by LCDR Donald W. Klopp, MC, USN, CDR Thomas Markham, MC, USN organized an initial protocol, assimilating available knowledge of aging acquired through research at NAMI and selected civilian studies. In 1968, CDR Joseph D. Bloom, MC, USN (now CAPT) became the military director at NSMRL, and imparted new impetus to the study. From 1969 to 1972, under the aegis of CDR Robert N. Sawyer, MC, USN, computer programs for data acquisition, editing, and storage were developed both at the computer facility at the Naval Underwater Sound Laboratory, New London, and at the Yale University Computer Center, New Haven, Conn. The programs were tested using data collected, during this time frame, from 345 submariners and divers. Early in 1973, CAPT John Baker, MC, USN and CDR Raymond Sphar, MC, USN supervised the emergence of the project, from its nascent phase to that of an effective health data collecting system.

A complementary retrospective review of available computerized morbidity data involving submarine and diving personnel is being prepared by Dr. Rupert Hester, with the assistance of select individuals from the Bureau of Medicine and Surgery and the National Research Council.

DESCRIPTION

The current format of the Longitudinal Health Study embraces a wide spectrum of individual health variables. Baseline historical information includes a detailed statement of personal and family health background, a summary of nuclear submarine and/or diving experience,



Cardiopulmonary Technicians HM1 Donald Liles and HM1 Russell Frayre conduct pulmonary function studies.

radiation exposure as reported in standard military health records (Form DD 1141), and an outline of personal habits such as smoking and alcohol consumption. Physical examinations are performed on an individual basis by a Submarine or Diving Medical Officer. Blood pressures, phases I, IV, and V, are measured in the supine and upright positions on two consecutive days; mean blood pressures are calculated to provide a basis for comparison.

Seventeen anthropometric measurements (including the three skin-fold measurements) have been selected with the advice of Mr. Robert White of the Anthropometric Section, Army Environmental Section, Army Environmental Laboratory, Natick, Mass. General anthropometric data on submariners and divers is currently not readily available. The pertinence of these measurements to the design of diving and submarine escape suits and devices, as well as escape hatches and submersible habitats, must be emphasized.

The Minnesota Multiphasic Personality Inventory, a 566-part questionnaire, is electronically processed to assess variables of human personality and adjustment. Laboratory examinations include: routine urinalysis, complete blood count, serology, a 14x17 in. chest roentgenograph, a 12-lead scalar electrocardiogram, and pulmonary function studies performed on a Collins 1253T residual volume spirometer. Long bone roentgenographs are routinely obtained for divers as part of the Aseptic Bone Necrosis Survey, also an NSMRL project.

A 12-channel autoanalyzer provides a chemistry profile which includes measures of fasting serum urea nitrogen, liver function studies, calcium and phosphorus, and cholesterol. Triglyceride, and Alpha-1 antitrypsin

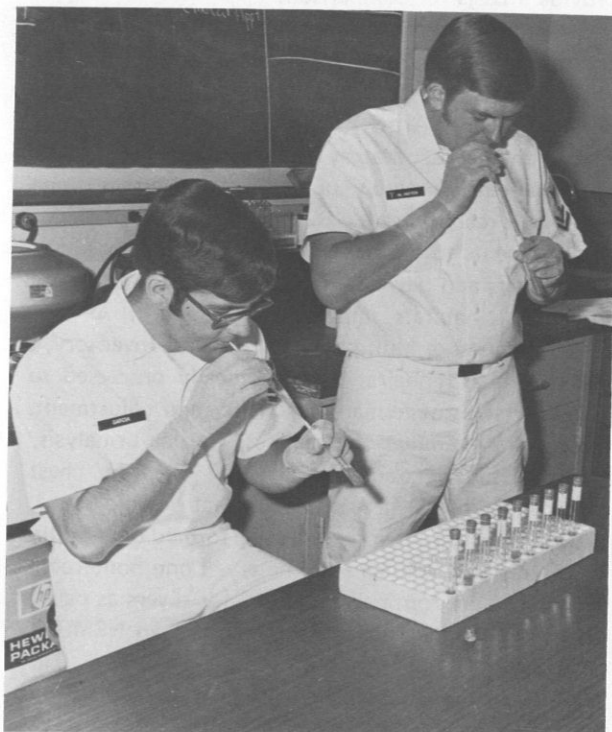
assays are soon to be included. The two-hour, post-prandial serum glucose is measured after a standard glucose challenge. An aliquot sample of serum is frozen in a serum bank for future reference.

Audiometric studies are conducted to investigate pitch memory, and air- and bone-conduction thresholds up to 18 kilocycles. The vision examination consists of refraction, tonometry, several color-vision tests, and fundus photography for evaluation of vascular characteristics. Finally, a rigorous dental examination is performed to classify the dental health of each subject; the findings are documented with color photographs, Panorex roentgenographs, and full-mouth plaster impressions.

A more comprehensive description of the data collection and processing techniques of the Longitudinal Health Study, by CDR R.N. Sawyer, MC, USN and CAPT John Baker, MC, USN, has recently been published in NSMRL Report No. 733. Each volunteer expects to be recalled at three- to five-year intervals, although the schedule for this is not firmly established.

COMMENT

Multiphasic screening is becoming a trend in modern medical practice in the United States, and has been adopted by many corporate interests as an integral part




Two hospital corpsmen involved in the Longitudinal Health Study, HM2 Paul Garcia (left) and HM2 James Anderson (right), prepare sterile aliquots for frozen serum bank.



Conferring on a recently published editing program in the Longitudinal Health Study are (left to right): CDR Raymond Sphar, Officer in Charge, NSMRL; Ms. Betty Megos, Computer Programmer; Dr. Charles F. Gell, Scientific Director, NSMRL; and Loren Mooney, Technical Supervisor.

of their occupational health programs. In terms of general acceptance, a major objection to multiphasic screening has been the follow-up of detected abnormalities. Within the general population, the follow-up requirement imposes a major demand upon available medical resources. As a group, submarine and diving personnel are healthier than the general population, owing to their relative youth and rigorous prior selection. Within the specialized parameters of investigation included in the Longitudinal Health Study, documented changes in individuals might well represent environmental effects that may be controlled. Close attention to the health profile that is being developed will be invaluable to those medical personnel whose task it is to closely monitor the habitability of submarine and diving environments, and to the engineers who design the vehicles, equipment, and habitats.

Statistical analysis of the data already collected by the Longitudinal Health Study is pending, and will be published in serial NSMRL reports. Our experience, so far, has demonstrated that valuable specialized health parameters can be effectively tabulated and assessed using low-maintenance computer software, and thus maximizing the role of paramedical personnel in the physical examination process.

The response of subjects to a physical examination that is so comprehensive has been uniformly enthusiastic. The methodology employed in this research-work unit deserves close scrutiny, as the U.S. Navy seeks to improve its occupational and preventive medicine techniques throughout the fleet, by effective physical screening and environmental control. 

THE GASTROENTEROLOGISTS' CORNER

Lymphoid Hyperplasia of the Small Bowel Associated with *G. lamblia* Infection

By LCDR John O. Meadows, MC, USNR,
Gastroenterology Branch, Medical Service and
Clinical Investigation Center,
Naval Hospital San Diego, Calif. 92134.

Since 1966 the syndrome of nodular lymphoid hyperplasia of the small bowel, associated with intestinal giardiasis has been recognized. Characteristic clinical features include: diarrhea, recurrent upper respiratory infections, absence of immunoglobulins IgA and IgM, and decreased IgG.¹ Although clinical improvement follows appropriate treatment of the parasitic infection, arrival at the correct diagnosis has been a major problem. The purpose of the paper is to describe a simple, highly effective technique for diagnosing this condition.

CASE REPORT

A 36-year-old female was hospitalized for evaluation of diarrhea (ten semi-formed brown stools daily), intermittent crampy abdominal pain, and a 15-pound weight loss over a three-month period. History of the present illness included chronic diarrheal stools, frequent upper respiratory infections, recurrent episodes of pneumonia, and recent milk intolerance.

Physical examination was unremarkable except for evidence of moderate malnutrition. Her height was 60 inches, and she weighed 68 pounds.

This study was supported by the Bureau of Medicine and Surgery, Department of the Navy, Clinical Investigation Control Center Work Unit No. 3-16-029.

The opinions or assertions contained herein are those of the author and are not to be construed as official, or reflecting the views of the Navy Department or the naval service at large.



FIGURE 1.—Barium contrast upper gastrointestinal X-ray study demonstrates the typical finely nodular, small-bowel pattern.

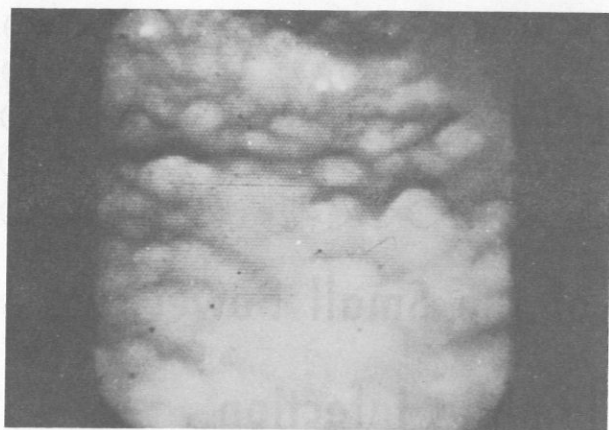


FIGURE 2.—Endoscopic photograph of duodenal mucosa showing the multinodular mucosa.

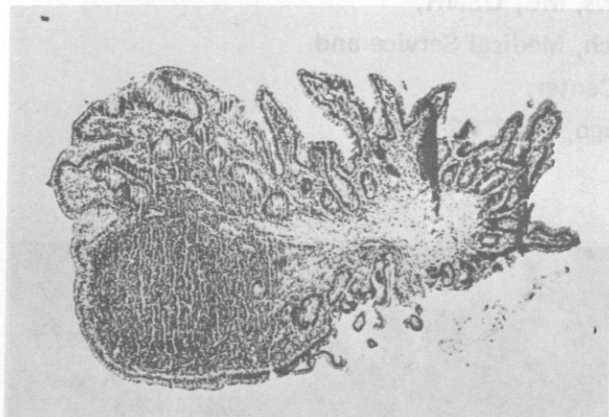


FIGURE 3.—Microscopic section of small bowel biopsy showing nodular lymphoid hyperplasia.

Numerous tests including sweat chlorides, d-Xylose absorption, thyroid function, and serum complement revealed no abnormalities. Stool studies were negative for parasites, ova, and pathogens. Examinations of bone marrow and cervical node biopsy proved unrewarding. Proctosigmoidoscopy and barium enema study revealed no unusual findings.

Skin tests for tuberculosis and histoplasmosis were negative, but a mumps skin test was positive. The serum carotene was slightly decreased, and total stool fat content (72 hours) was moderately elevated. The serum albumin was decreased, and a lactose tolerance test indicated lactase deficiency. Serum immunoelectrophoresis showed an absence of IgA and IgM, with depressed IgG. No IgA was demonstrated in the patient's gastric juices.

The upper gastrointestinal and small bowel X-ray studies revealed a finely nodular configuration (See Figure 1). Upper gastrointestinal endoscopy demonstrated a fine multinodular mucosa (See Figure 2).

Microscopic study of the duodenal biopsy specimen showed nodular lymphoid hyperplasia (See Figure 3), and duodenal secretions (endoscopic aspiration) contained numerous *Giardia lamblia* trophozoites.

Diarrhea and abdominal pain were relieved within one week, following treatment consisting of lactose-free diet and quinacrine, 300 mg daily. Follow-up examination was conducted three months later. The patient had gained five pounds in weight. Repeat endoscopy revealed that the nodular mucosa was still present, but examination of the aspirated duodenal secretions failed to disclose any *Giardia* organisms.

DISCUSSION

Immunoglobulin deficiency is the hallmark of this syndrome, and IgA is the immunoglobulin most commonly deficient. Secretory IgA is a 7S gamma-globulin predominantly found in colostrum, saliva, tears, nasal and bronchial secretions, and intestinal juices. Salivary IgA is a beta-globulin of approximately 50,000 molecular weight, with a heavier, 11S molecule. The immunoglobulin IgA is produced locally in plasma cells located beneath a mucous surface, becomes attached to a transport piece located in the epithelial cells, and is secreted into the lumen. It is the most common immunoglobulin in the bowel, where it is secreted as two molecules attached by a transport piece. The transport (secretory) piece is always present, and recent studies indicate that it may play a major role in the immunologic competence of secretory IgA.²

Therapy

There is no effective therapy for the IgA deficiency seen in these patients. Therapy is directed toward the secondary infections which are frequently seen in this syndrome. Patients should receive treatment for all respiratory infections, and for recurrent parasitic disease. Recent reports indicate that metronidazole (Flagyl) tablets taken orally, 250 mg t.i.d. for 10 days, provide an effective alternative to quinacrine (Atabrine) for the treatment of *Giardia* infection, and the former drug is commonly employed in the treatment of this complication.⁵ The efficacy of gamma-globulin remains controversial, but most investigators consider it to be of little or no value.⁵

Complications

In addition to recurrent respiratory and parasitic infections, other complications reported to occur in the syndrome include: lactose intolerance, malabsorption, and an increased incidence of gastrointestinal malignancy. The lactase deficiency appears to be

related to the giardiasis, and disappears with treatment of the parasite. The intestinal malabsorption is also associated with *Giardia lamblia* infestation, which produces varying degrees of jejunal mucosal abnormalities. These abnormalities are more severe when associated with immunoglobulin deficiency; with treatment of the parasitemia, there is both improved absorption, and a return of intestinal histology toward normal.⁶

Finally, there appears to be an increased incidence of intestinal lymphoma in patients with this syndrome, and the incidence of colon, lung, and stomach carcinoma has also been reported to be increased.¹

CONCLUSION

The difficulty in finding *Giardia lamblia* in the stool is well recognized, and has stimulated a search for a more direct approach to the diagnosis. The use of gelatin capsules and other forms of duodenal intubation has been described, but such procedures tend to be tedious.⁵

Direct endoscopic visualization with aspiration of duodenal secretions through the biopsy channel is a safe, efficient technique for confirming the diagnosis of this condition. Because of the difficulty in finding

Giardia organisms in the stool, it is suggested that patients who present lymphoid hyperplasia on small bowel X-ray study should receive duodenal intubation; careful examination of aspirated duodenal secretions should reveal the presence of *Giardia lamblia* trophozoites, when this parasitic infection is present.

REFERENCES

1. Hermans PE, et al: Dysgammaglobulinemia associated with nodular lymphoid hyperplasia of the small intestine. *Am J Med* 40:78-89, 1966.
2. South MA, et al: The IgA system. *Am J Med* 44:168-178, 1968.
3. Osoba D: Thymic function. Immunologic deficiency and autoimmunity. *Med Clin North Am* 56:319-335, Mar 1972.
4. Bezjak B: Evaluation of a new technique for sampling duodenal contents in parasitologic diagnosis. *Am J Dig Dis* 17:848-850, 1972.
5. Ament ME, et al: Relation of giardiasis to abnormal intestinal structure and function in gastrointestinal immunodeficiency syndrome. *Gastroenterology* 62:216-226, 1972.
6. Hoskins LC, Winawer SJ, Broitman, et al: Clinical giardiasis and intestinal malabsorption. *Gastroenterology* 53:265, 1967. 🐾

MERCY MISSION



TO THE RESCUE.—HMC Ernie LeClerc, USN administers intravenous aid to Italian priest Schraino Antonio on the landing strip at Naval Air Facility, Naples, Italy. The Catholic priest suffered a heart attack on Ischia Island, some 20 miles from Naples. UH-2C Seasprite helicopter crews based at the Naval Air Facility flew through 25-knot winds to rescue the priest. On previous mercy missions this year, Navy helicopters lifted a crewman from a U.S. Navy ship at sea, and transported an Italian child suspected of having tetanus. — PAO, U.S. Naval Air Facility, Naples, Italy. 🐾

FDA APPROVES PROPRANOLOL IN ANGINA PECTORIS

The Food and Drug Administration (FDA) has approved use of propranolol in selected patients with moderate to severe angina pectoris who have not responded to conventional measures.

Although propranolol appears to decrease anginal pain by decreasing cardiac work and oxygen consumption, these benefits must be weighed against its tendency to increase the left ventricular end-diastolic volume. The drug should therefore be used with great caution in patients with a history of heart failure or evidence of cardiac enlargement. Concomitant use of cardiac glycosides and/or diuretics may be necessary in such patients.

Propranolol should not be continued unless there is clear increase in exercise tolerance or decrease in anginal pain. The drug should not be used: as initial treatment, when angina occurs only with considerable exercise, or when angina is provoked only by situations which occur infrequently. Its use is contraindicated in patients with bronchial asthma, sinus bradycardia, second or third degree atrioventricular block, or overt heart failure. — *FDA Drug Bulletin*, Jan 1974. 🐾

NEW DISPENSARY AT KEFLAVIK NAVAL STATION

Last year the Navy Medical Department spent \$3,700,000 to prepare for an event it hopes will never happen.

A new multimillion-dollar dispensary, specifically designed to provide emergency medical care to mass casualties in the event of a disaster, was dedicated at Naval Station Keflavik, Iceland, on 9 Nov 1973. The need for such emergency-care capability becomes most apparent during the harsh Iceland winters, when it can take hours to travel the 35 miles that lie between the dispensary at Keflavik, and the next nearest medical facility in the capital city of Reykjavik.

A mass emergency need not exist, however, to make full use of the new dispensary's resources. A staff of 58 Navy and Air Force health-care professionals provides routine medical care and services to military and dependent personnel, stationed near the NATO (North Atlantic Treaty Organization) Base at Keflavik. Available services include an eye, ear, nose and throat clinic; a pharmacy; X-ray capability; and facilities for specialty care in obstetrics, gynecology, surgery, pediatrics, physical therapy, and aviation medicine.

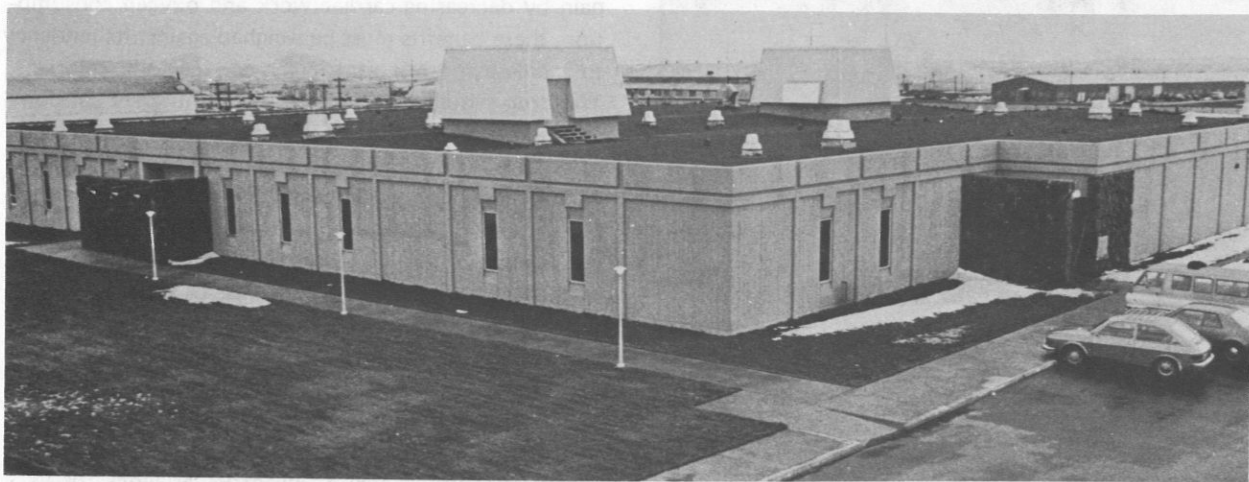
The staff has the use of modern wall-mounted otoscopes and ophthalmoscopes, an electric thermometer

that digitally displays a patient's temperature in three seconds, and pocket-sized emergency call radios that enable physicians to receive messages when they are away from the dispensary. This radio-call system ensures prompt response when emergency care and urgent specialty consultations are needed during physicians' off-duty hours.

During an emergency, the 25-bed dispensary can be arranged to accommodate 45 beds. A portable defibrillator and heart monitor are available for use in cardiac arrest cases; also on hand are three intensive-care incubators, one of which is portable and can be used for air evacuation, or in an ambulance during transfer of an infant over long distances.

Each physician's office is located between two examining rooms. Color-coordinated, wall-to-wall carpeting, scenic painting, and individually climate-controlled rooms help create a tranquil and relaxed atmosphere for dispensary patients.

Designed by Marcellus Wright of Richmond, Va., the building resembles the Admiral Joel T. Boone Clinic in Little Creek, Va., except that the Keflavik dispensary provides inpatient care.—PAO, Iceland Defense Force, Box 1, FPO New York 09571. (Photos by JO3 Sommers)



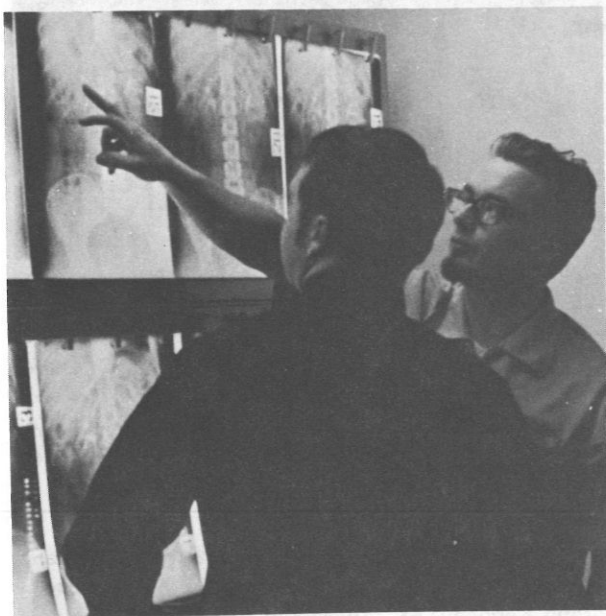
NEW DISPENSARY.—The new \$3.7 million dispensary at Naval Station Keflavik, Iceland, was dedicated in Nov 1973.



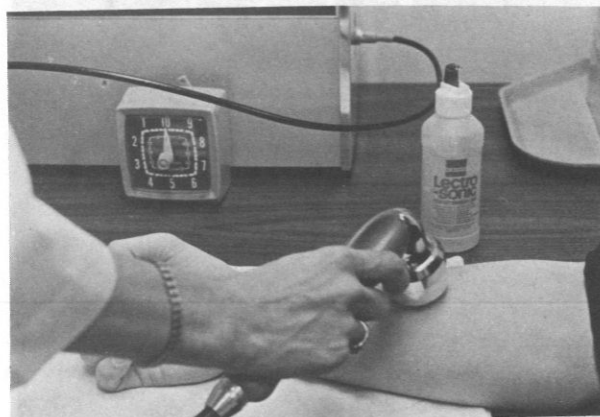
TENDER LOVING INTENSIVE CARE.—LT Karen Born, NC, USN attends an infant in one of three intensive-care incubators used at the Naval Dispensary at Keflavik.



DAILY ROUTINE.—Careful examination of a child is part of the daily routine of the physicians who care for military, civilian, and dependent personnel at Naval Station Keflavik, Iceland. The Keflavik Naval Dispensary is staffed by 58 Navy and Air Force health-care professionals.



HEALTH DETECTIVES.—HM1 Dave Fitzpatrick (left) and HM2 Marvin Durnin (right) search X-ray studies for clues to a patient's problem. The technicians are assigned to the new dispensary at Naval Station Keflavik, Iceland.



SOOTHING SOUND WAVES.—This ultrasonic machine for relief of painful muscles, is part of the modern equipment available at Naval Dispensary Keflavik, Iceland.

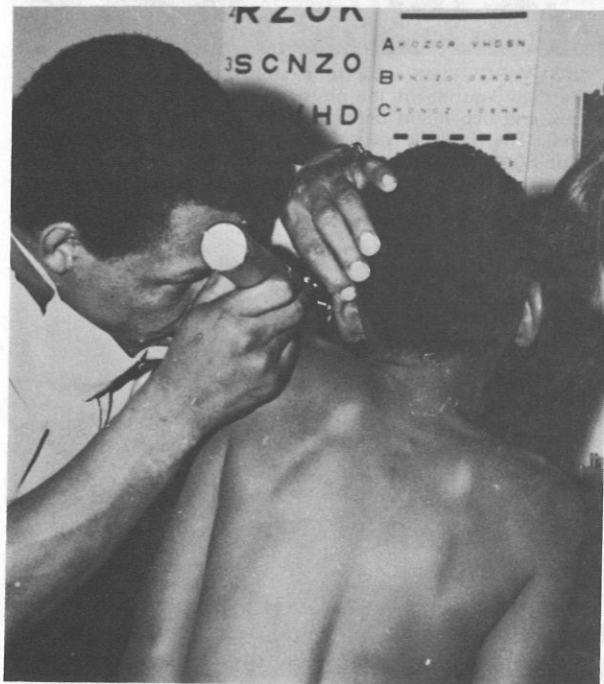
RETARDED CHILDREN GET HELPING HAND

Nearly 230 retarded children in Pensacola, Fla., were able to participate in local, county, Olympic-type competitive games this year because a physician and four corpsmen from Nav Hosp Pensacola offered a helping hand.

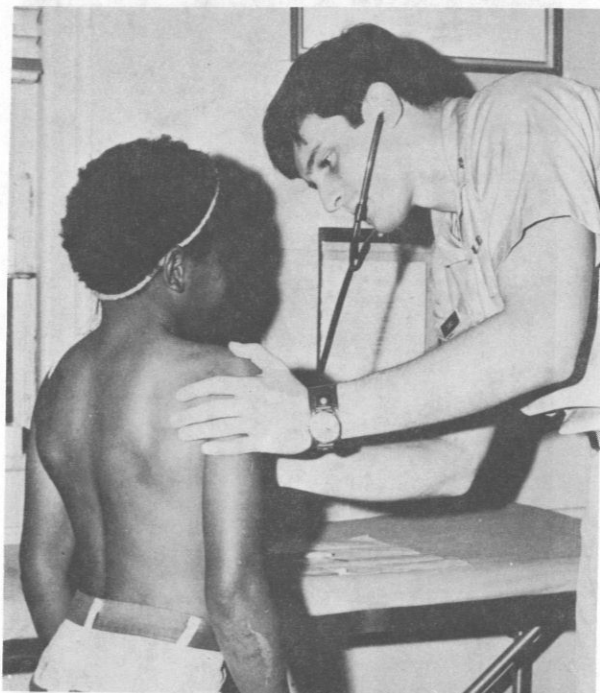
LT Laurence G. Cignoli, MC, USN arranged to have busloads of retarded children taken to his office at the Naval Aerospace and Regional Medical Center's branch dispensary at Corry Station, for complete physical examinations before the games. In the past, many children were not able to participate in the games because they did not have the required physical examination.

In conducting the examinations, the Navy physician was assisted by: HM2 Eugene Bolton, HM2 Robert B. Hooks, HM3 Joseph M. Raymond, and HN Kenneth C. Crawford.

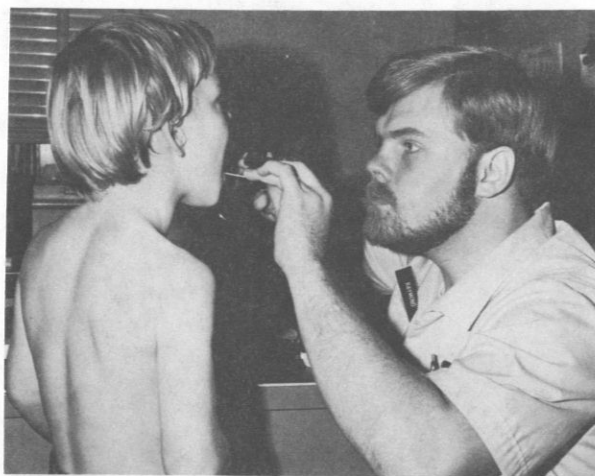
Jack T. Price, a teacher and member of the Board of Directors of the Escambia Bay Jaycees who sponsored the games, said that Dr. Cignoli and the corpsmen worked five Thursdays to examine the children. "Funds are not available for this project except through charitable donations, so we certainly appreciate the fact that the Navy personnel were able to take care of the physicals for us," Mr. Price said. "Dr. Cignoli is a fantastic individual who establishes a one-to-one rapport with everyone he meets. He made it easy for the children."



JUST LOOKING IN.—HM2 Eugene Bolton checks the ears of a prospective participant in special athletic events for retarded children.



HALE AND HEARTY.—LT Laurence G. Cignoli, MC, USN listens to the heartbeat of a young athlete.



PREGAME PHYSICAL.—HM3 Joseph M. Raymond examines a young boy before the start of Olympic-type competition in Pensacola, Fla.

The special Olympic games are part of national activities started for retarded children by the late Joseph Kennedy, Sr. Successful participants may go on to compete in subsequent district and higher-level meets. — PAO, Nav Aerosp and Reg Med Center Pensacola, Fla. 🍀

ENERGY METABOLISM and WEIGHT CONTROL

By LTJG Steven R. Lamar, MSC, USN

Clinical Nutritionist, Food Management Service,
National Naval Medical Center, Bethesda, Md.

Introduction

The slogan "shape up" is not unfamiliar to Navy personnel. However, this idiom is now being used in a more literal context by many sailors (officer and enlisted) — shaping up physically, and maintaining one's physical condition both physiologically and aesthetically. Failure to do so will affect not only the serviceman's belt size; other vital factors such as performance, promotions, and retention may also be influenced. In July 1973 the Bureau of Naval Personnel issued a memorandum¹ to all Navy unit commanders, commanding officers, and officers-in-charge, concerning weight control and the physical appearance of Navy personnel. This memorandum solicits the cooperation of all commands in the initiation and maintenance of physical fitness, and weight-control programs. Emphasis is placed not only on identifying obese persons, but on providing guidance and assistance in the management of individual diet and exercise regimens.

In recognition of the Navy Medical Department's responsibility for providing health, fitness, and weight-control counseling to service members, and in response to the projected increase in demand for these services,

this review article offers background information on energy metabolism and weight control, for all Navy Medical Department personnel.

Historical Background

Early studies of energy requirements and expenditure in animals were related primarily to respiration and the process of combustion. Work by Robert Boyle and Robert Hooke in 1665 culminated in the publication of Hooke's "Theory of Combustion," and in 1668 John Mayow stated that the atmosphere contained a constituent which supports combustion and is also necessary for animal life. Although the identification of this atmospheric constituent was made independently by C.W. Scheele and J. Priestley in 1775, it was not until 1780 that the relationship between oxygen, respiration, and combustion was defined by Lavoisier. He held the view that life processes were actually oxidative, and that they resulted in heat production. He also demonstrated that respiration causes a diminution of oxygen gas and a production of carbonic gas, with the nitrogen component of the atmosphere remaining unchanged. During the late 19th and early 20th centuries, numerous investigators were involved in the study of energy metabolism. In 1892 Max Rubner established the fundamental law that energy is neither created nor destroyed in the animal body. He also demonstrated that the heat value of metabolism in a

The opinions or assertions contained in the above article are those of the author, and are not to be construed as official or reflecting the views of the Navy Department, or the naval service at large.

resting animal is proportional to the animal's body surface area, and in 1902 demonstrated and defined the "specific dynamic action" of the various foodstuffs. In 1897 Atwater and Rosa developed a calorimeter to measure heat production in man, from which calculations were derived to measure caloric (Cal.) energy values of dietary carbohydrate, protein, and fat. Other significant research was conducted by such notable investigators as: Du Bois (1916), standards of basal metabolism; Carpenter and Murlin (1911), metabolism during pregnancy; and Benedict and Talbot (1914), infant metabolism.^{2,3,4}

Environmental Energy Sources

The overconsumption of free molecular foods by primitive, single-cell life forms, existing in the primordial seas, probably represents the first "energy crisis" to confront a living organism. These early, single-cell organisms — thriving and multiplying abundantly — were nourishing themselves into extinction. As the food supply dwindled, the need for a new food source became necessary. Through evolutionary change and adaptation, sunlight became the ultimate energy supplier for the vast majority of simple organisms. The abundant energy of the sun, and the energy-trapping property of chlorophyll resulted in the evolution of the process of photosynthesis. These photosynthesizing cells began to make food for themselves, through the process whereby sunlight and chlorophyll promote the transformation of carbon dioxide gas (CO_2) and water into carbohydrate. Today, photosynthesis still supports all living creatures through the food-chain process. Food energy from plants is transferred through a series of organisms, with alternate steps of eating and being eaten. Man usually occupies a position at or near the end of a chain of food items, and is still dependent on plants for his oxygen.^{5,6}

Need for Energy in the Body

As demonstrated by the evolution of the energy-gathering mechanisms of early monocellular organisms and the role of the food chain in the distribution of food energy, it must be understood that the fundamental laws of physical existence ultimately revolve around energy needs. Every organism needs energy to exist, and man is no exception. Generally, there are four major needs for energy in the body: basal metabolism, activity, growth and repair of tissues, and specific dynamic action. Basal energy needs include the requirements for maintenance of muscle tone, body temperature, and other involuntary activities such as circulation, and glandular and cellular activities. Since the body can perform work only as energy is released, all forms

of physical activity require energy, from the simplest muscular contraction to the lifting of heavy loads. Growth and repair of tissues is another extremely important energy-requiring function, particularly during childhood, but also in later life due to the endless number of chemical changes occurring in cells and tissues. Although not as demanding on energy needs as are basal metabolism, activity, and growth and repair, the body also requires energy for the utilization of food. This energy cost is known as specific dynamic action (SDA). Although fairly insignificant in terms of total energy cost — only about six percent of the energy value of the dietary intake is consumed by SDA — this mechanism may play a role in the regulation of individual food intake.⁷ Studies by Passmore and Ritchie⁸ have suggested that specific dynamic action may be part of the satiety mechanism.

Food

The three basic energy-yielding components of food are: carbohydrates, proteins, and fats. The energy value of food is expressed in terms of a unit of heat, the kilocalorie (or Calorie), and is defined as the amount of heat required to raise the temperature of 1 kilogram of water 1° centigrade.⁹ The ability of an animal to release energy from foods depends on a multiplicity of complex chemical changes occurring in the simple energy-yielding nutrients, glucose and fatty acids. These low-energy nutrients are converted into a high-energy compound, adenosine triphosphate (ATP); in the form of ATP, energy is available in regulated amounts at the cellular level. This transfer of energy to ATP takes place almost exclusively in the mitochondria of the cell. The value of energy obtained from the three major foodstuffs — carbohydrate, protein, and fat — depends upon their chemical composition. Carbohydrates provide the cheapest fuel for human and animal energy, and are generally oxidized more efficiently than proteins and fats. Through calorimetry, the energy-contributing potential of the basic foodstuffs can be determined. The average fuel value for carbohydrate is 4.1 Calories per gram; protein, 5.65 Calories per gram; and fat, 9.45 Calories per gram. These values do not, however, represent the physiological fuel values of these foodstuffs in the human body. The true physiological fuel values are determined by compensating for the incomplete oxidation of proteins in the body, in addition to the incomplete digestion of carbohydrates, proteins, and fats. After accounting for these factors, the energy-contributing potential of these foodstuffs in the human body becomes: 4 Calories per gram for carbohydrate, 4 Calories per gram for protein, and 9 Calories per gram for fats.^{4,7,10} In addition to the

energy contribution of these foodstuffs, the alcohol in alcoholic beverages must also be recognized as a source of usable energy. The average caloric value of alcohol in the diet can be considered to approximate 7 Calories per gram.¹¹ Knowledge of these values is essential in determining the energy contribution of ingested foods and beverages.

Basal Metabolism

Basal metabolism is frequently defined as the absolute minimum energy requirement of an organism, usually measured 12 to 15 hours after the last meal, with the subject comfortably warm, relaxed, and lying quietly.⁷ The energy base line or basal metabolism varies inter- and intra-individually, and is influenced by a number of factors. Body composition is probably the single most important factor. The individual with the greater mass of muscle or active protoplasmic tissue will have the greater basal energy need, and thus the higher rate of basal metabolism.⁴ Thus two individuals of exactly the same weight, height, and body surface area may present different basal rates. The explanation for this difference lies in the variation in body composition. If the fat, extracellular fluid, and bone mineral contents are subtracted from the total mass of the body, the remainder represents active tissue mass. Keys and Grande¹² have estimated that this mass may represent 30-65% of the total body weight, but it accounts, substantially, for all the energy consumption. Basal metabolic rate differences between the sexes are explained, primarily by differences in lean body mass. According to Taylor and Pye,⁴ women, with a higher proportion of body fat, have an average basal metabolism about eight percent lower than that of normal men. Also, through rigorous conditioning and physical training, athletes have developed a proportionally larger muscle mass with little body fat. These individuals tend to demonstrate a basal metabolism about six percent higher than nonathletic individuals of the same height, size, and weight.⁹

Another important factor influencing basal metabolism is that of growth. Studies by Forbes¹³ have shown that lean body mass (and, thus, basal metabolic rate) increases sharply during adolescence, particularly in the male. The maximum value in the male is reached between 18 and 20 years of age, and has been shown to be 1.4 times that of the female whose maximum is reached between 15 and 16 years of age.¹³ Age and basal metabolism are inversely related. Studies conducted by Harris and Benedict concluded that for each year after the age of 20, a man's decrease in basal heat production amounted to 7.15 Calories per day; a woman's decrease amounted to 2.3 Calories per day.⁴

According to Forbes and Reina,¹⁴ this decline tends to speed up in later years, and is somewhat greater in the male. By age 65-70 years, the average male has 12 Kg less lean body mass than at age 25; the female has 5 Kg less.¹⁴ These factors must be considered in the determination of ideal body weights. In addition to those discussed, other factors such as undernutrition, starvation, glandular secretions (thyroxin, adrenalin), environmental temperature, body temperature, and the efficiency of the body's heat-regulating mechanism may also influence basal metabolic rates, and should likewise be considered when determining basal energy requirements.

Energy Needs Above Basal Metabolism

In addition to the energy needs of basal metabolism and specific dynamic action, other factors must be considered in determining total energy requirements. The needs for specific functions such as growth, tissue repair, pregnancy and lactation, as well as the energy demand of muscular work, must be taken into account.

Muscular Activity

The energy cost of muscular activity is the primary fuel-requiring factor to be considered, in determining energy needs above basal requirements. Using both direct and indirect calorimetry techniques, numerous studies have been conducted by a variety of investigators to determine the energy cost of different physical activities. The energy cost of various activities is shown in Table 1. There has been tremendous variability among individual reports of the energy required to perform the same task. Generally, the amount of energy required is in proportion to the work done. Thus the greater the degree of activity, or the more strenuous the exercise, the more energy is required. This does not mean, however, that two persons performing the same physical task expend the same amount of energy. Differences in body weight, muscle size, body condition, efficiency of movement, and performance rate may well introduce tremendous differences in energy cost.¹⁵ Studies by Bloom and Eidex¹⁶ have demonstrated such variability, in a comparison of energy expenditure in obese and lean subjects. They report that lean persons expend less energy (in performing comparable physical tasks), and generally can outperform the obese. Further, after training a person will burn fewer calories than before training, as a result of conditioning and increased physical fitness. It has also been shown that an obese person tolerates his weight better than a lean person carrying a load to give him a total weight equal to the weight of the obese subject — presumably due to the gradual conditioning of the

TABLE 1
THE ENERGY COST OF ACTIVITIES
(Exclusive of Basal Metabolism and Influence of Foods)*

<i>Activity</i>	<i>Cal/Kg/hr</i>
Bicycling (century run)	7.6
Bicycling (mod. speed)	2.5
Boxing	11.4
Dancing (mod. active)	3.8
Dressing, undressing	0.7
Driving car	0.9
Football	6.8
Golf	1.5
Lying still, awake	0.1
Office work, standing	0.6
Playing cards	0.5
Reading aloud	0.4
Rowing in race	16.0
Running	7.0
Sawing wood	5.7
Sitting quietly	0.4
Standing at attention	0.6
Swimming (2 mph)	7.9
Tennis	5.0
Typing rapidly	1.0
Walking (3 mph)	2.0
Walking (5.3 mph)	8.3
Writing	0.4

*To obtain total energy expenditure, add 1.1 Calorie per Kg per hour for each activity.

Source: Adapted from Chaney and Ross.⁷

obese.¹⁶ Another explanation for differences between individuals, in the energy price of comparable activities, may be the influence of diet on the efficiency of the working muscles. Consolazio and Johnson¹⁷ have reported information related to diet and work capacity, in which dietary carbohydrate, work intensity, and muscular efficiency have been correlated. Carbohydrate was shown to be the preferred energy source for the working muscle, and the ratio of carbohydrate to fat utilized in the production of energy was shown to rise

with an increase in work intensity. Also, during strenuous physical activity, endurance increased in proportion to the muscle glycogen stores available, suggesting that carbohydrate stores may be the limiting factor during prolonged physical activity.¹⁷

Mental Activity

The possible effect of concentrated mental activity on energy requirements raises an intriguing question. The assumption that appreciable amounts of extra energy are required for mental activity was probably based on the fact that the brain has a very high rate of oxygen utilization, about 3.5 ml/100 g/min, or, roughly, 20% of the total oxygen uptake of the body at rest.¹⁵ Studies by Benedict and Benedict¹⁸ demonstrated that, although concentrated mental activity accelerated the heart rate, produced irregular respiratory movements, and caused mental and bodily fatigue, the increase in oxygen consumption was very small and represented only a 3-4% rise in heat production. This would represent the need for only an additional 10 Calories of energy for a three-hour period of concentrated study, thus demonstrating the insignificant demand of mental activity for increased energy.⁷

Energy Relationships: Intake vs. Expenditure

In considering the relationship between caloric intake and energy expenditure, it is necessary to consider the importance of each factor in terms of influence on body weight. Assuming an isocaloric intake, an increase in energy expenditure will cause weight loss, whereas a decrease in energy expenditure will result in weight gain. Likewise, assuming constant levels of energy expenditure, an increase in caloric intake exceeding weight maintenance requirements will result in weight gain; a decrease in caloric intake below weight maintenance requirements will cause weight loss. Therefore, a change in one's activity resulting in decreased energy expenditure need not necessarily result in weight gain if caloric (food) intake is reduced accordingly. Furthermore, a change in caloric intake need not result in a change in body weight if energy expenditure is adjusted concomitantly.

Severe and prolonged caloric deprivation can have extreme consequences in adults and children. The most obvious manifestation of caloric undernutrition is decrease in body weight, resulting from the use of body tissues as a source of energy. During the first few days of caloric deprivation, a high percentage of the weight lost is due to fluid loss. As the caloric restriction progresses, the proportion of fluid loss decreases and the losses of fat and protein increase.¹⁹ Probably the most significant result of low-caloric

intakes in the United States, considering the relative absence of starvation, is the deterioration of work output resulting from the prevalent use of excessively restrictive, controlled-calorie diets for the purpose of weight reduction. Chaney and Ross⁷ illustrate this effect by stating that, assuming maximum (100%) output during hard work on an intake of 3600 Calories, output will be: 82% at 3300 Calories, 66% at 3000 Calories, and 44% at 2500 Calories. This information clearly demonstrates the importance of adequate caloric intake, and the results of caloric deprivation on work output; caution must be exercised in the use of overly restrictive, controlled-calorie diets for weight reduction.

In a manner opposite to the weight loss caused by caloric deficit, weight gain caused by fat storage may result from caloric overnutrition. The end result of caloric overnutrition in children and adults is fat storage by adipose tissue, often leading to one of the most prevalent diseases of affluent societies — obesity. The suggestion, however, that all obesities result exclusively from overeating is, according to Mayer,²⁰ "... at worst a tautology, at least an oversimplification." The etiology of obesity is often difficult to define and most certainly multifactorial. Many clues point to a genetic basis for obesity, in which the number of adipose cells is determined in utero.²¹ Other studies suggest that overfeeding during early life may increase the total number of adipose cells, and thus increase one's potential for fatness. Recent evidence suggests that the greatest development of adipose cells occurs late in gestation, in the first year of life, and in early adolescence.²² Overfeeding during these critical periods could result in predisposing one to a lifetime of weight-control difficulty. According to Albrink,²¹ probably the single most important factor contributing to human obesity is culturally determined overnutrition and underactivity. Regardless of etiology, the consequences of obesity may pose serious hazards to one's health, including increased risk of developing atherosclerosis, heart disease, hypertension, diabetes, and renal disorders.

Regulation of Caloric Intake

Assuming the availability of foods for consumption, among factors that may act to regulate caloric intake are appetite, hunger, and satiety. Mayer²³ defines appetite as "the complex of sensations, up to a point pleasant, or at least not unpleasant, by which the organism is aware of desire for and anticipation of ingestion of palatable food"; and hunger as "the complex of unpleasant sensations, felt after prolonged deprivation which will impel an animal or a man to seek, work,

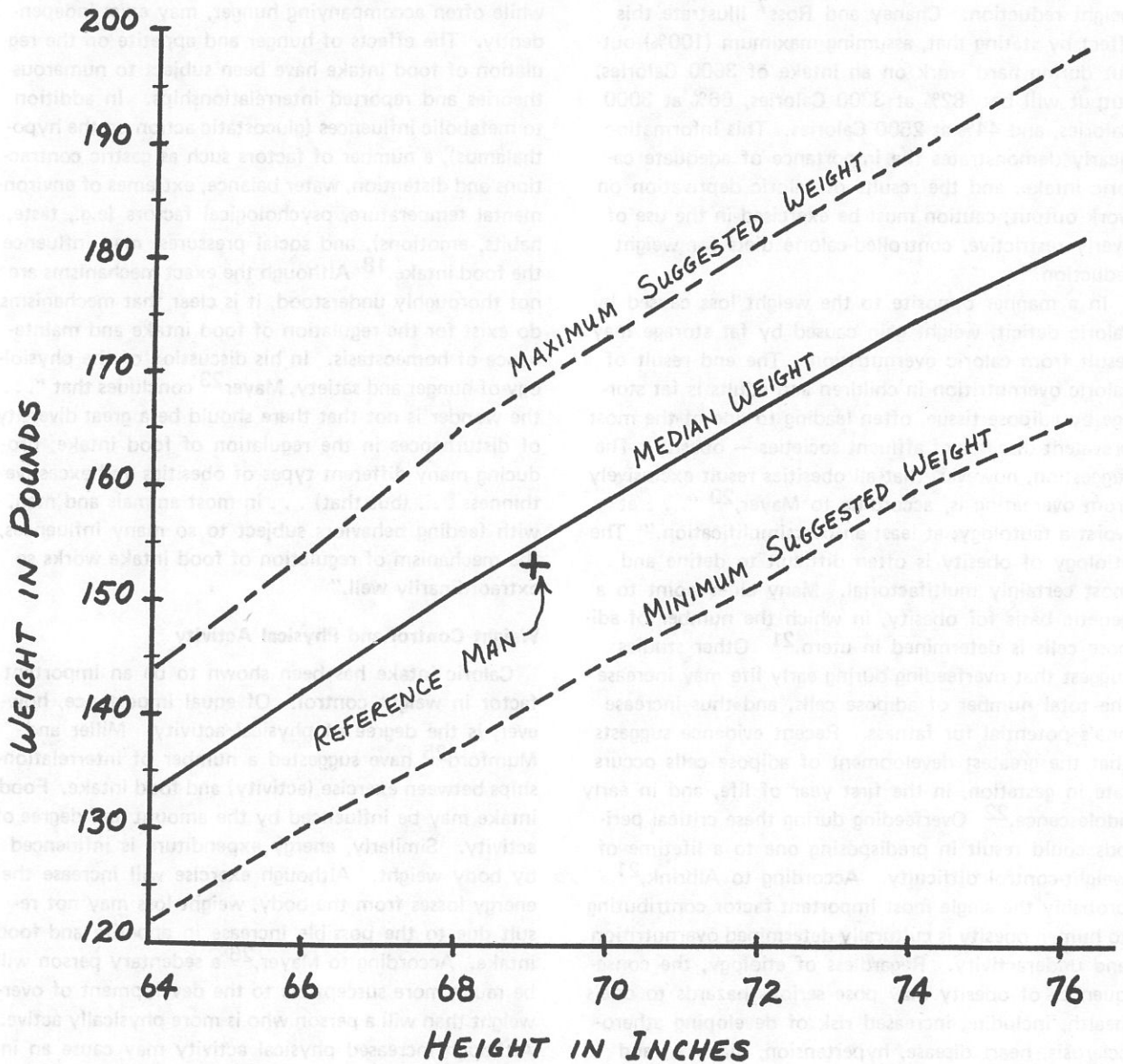
or fight for immediate relief by ingestion of food." In his discussion of hunger and appetite, Brosin²⁴ suggests that hunger pangs may be independent of appetite, although they are usually associated. Conversely, appetite, while often accompanying hunger, may exist independently. The effects of hunger and appetite on the regulation of food intake have been subject to numerous theories and reported interrelationships. In addition to metabolic influences (glucostatic action on the hypothalamus), a number of factors such as gastric contractions and distention, water balance, extremes of environmental temperature, psychological factors (e.g., taste, habits, emotions), and social pressures, may influence the food intake.¹⁸ Although the exact mechanisms are not thoroughly understood, it is clear that mechanisms do exist for the regulation of food intake and maintenance of homeostasis. In his discussion of the physiology of hunger and satiety, Mayer²³ concludes that "... the wonder is not that there should be a great diversity of disturbances in the regulation of food intake, producing many different types of obesities and excessive thinness ... (but that) ... in most animals and men, with feeding behaviors subject to so many influences, the mechanism of regulation of food intake works so extraordinarily well."

Weight Control and Physical Activity

Caloric intake has been shown to be an important factor in weight control. Of equal importance, however, is the degree of physical activity. Miller and Mumford²⁵ have suggested a number of interrelationships between exercise (activity) and food intake. Food intake may be influenced by the amount and degree of activity. Similarly, energy expenditure is influenced by body weight. Although exercise will increase the energy losses from the body, weight loss may not result due to the possible increase in appetite and food intake. According to Mayer,²⁶ a sedentary person will be much more susceptible to the development of overweight than will a person who is more physically active. Although increased physical activity may cause an increase in food intake, this may not be true for all levels of physical activity. In a study of diet, activity, and body weight in women, Taggart²⁷ reported that caloric intake was not related to activity on the same day, and that only a small relationship was found between activity on one day and caloric intake on following days. Studies of obese high school girls suggest that inactivity was a much more important factor than overeating in the development of obesity. It was shown by Johnson and Burke,²⁸ in fact, that the caloric intake of the obese subjects was significantly lower than that of the nonobese subjects.

FIGURE 1

SUGGESTED WEIGHT VS. HEIGHT FOR MEN



Source: Adapted from National Research Council²⁹

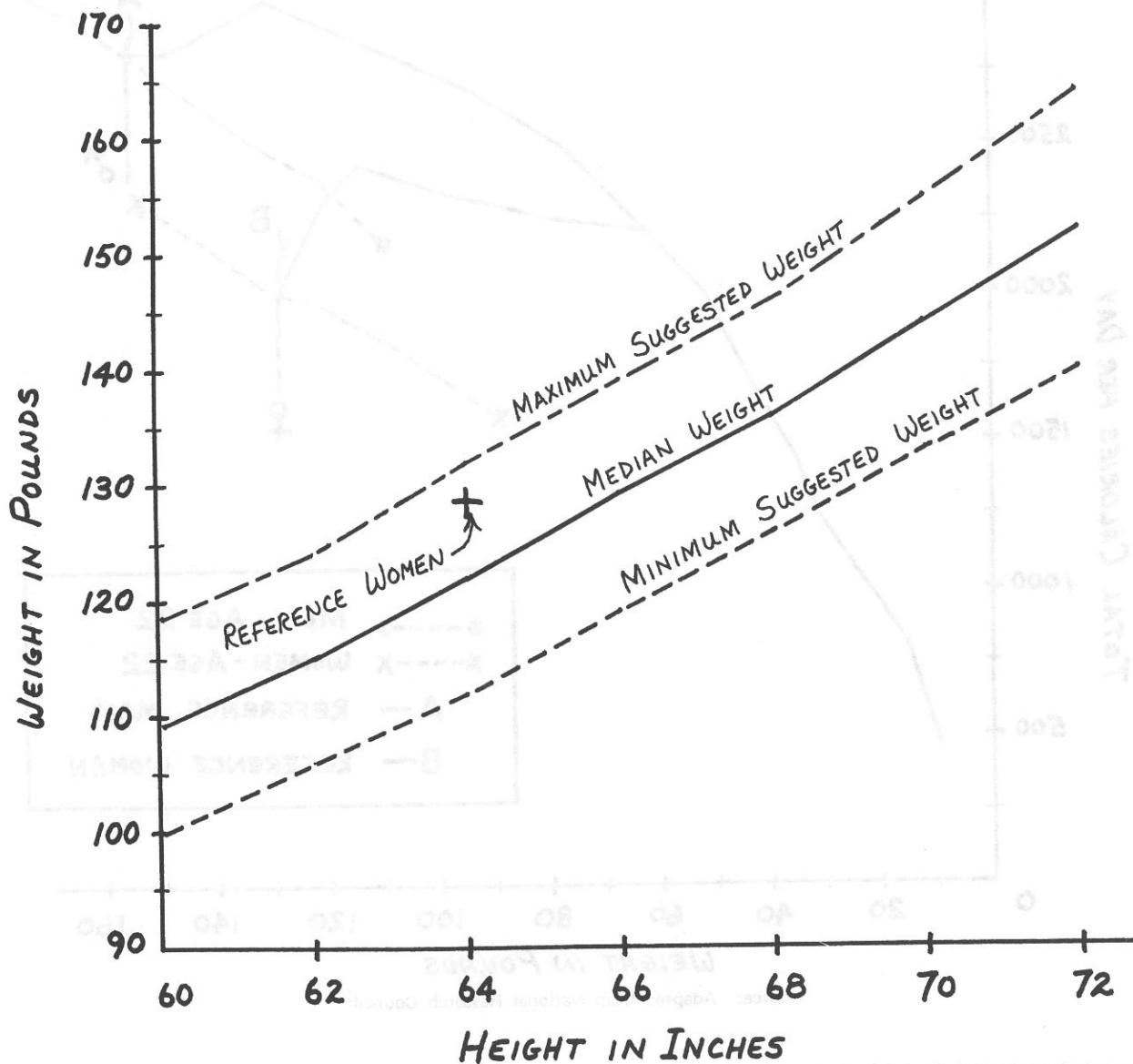
Recommended Caloric Allowances

In consideration of the need for suggesting recommended caloric allowances for the population of the U.S., the National Research Council has proposed standard caloric allowances based on the reference man and woman, from which appropriate individual adjustments

can be made. The reference man is 22 years old, and weighs 70 Kg. The reference woman is also 22 years of age, and weighs 58 Kg.²⁹ Figures 1 and 2 illustrate the suggested weights for different heights of adult men and women, and the variability of "ideal" weights within the population for different body sizes. There is tremendous inter- and intra-individual variability, in

FIGURE 2

SUGGESTED WEIGHT VS. HEIGHT FOR WOMEN



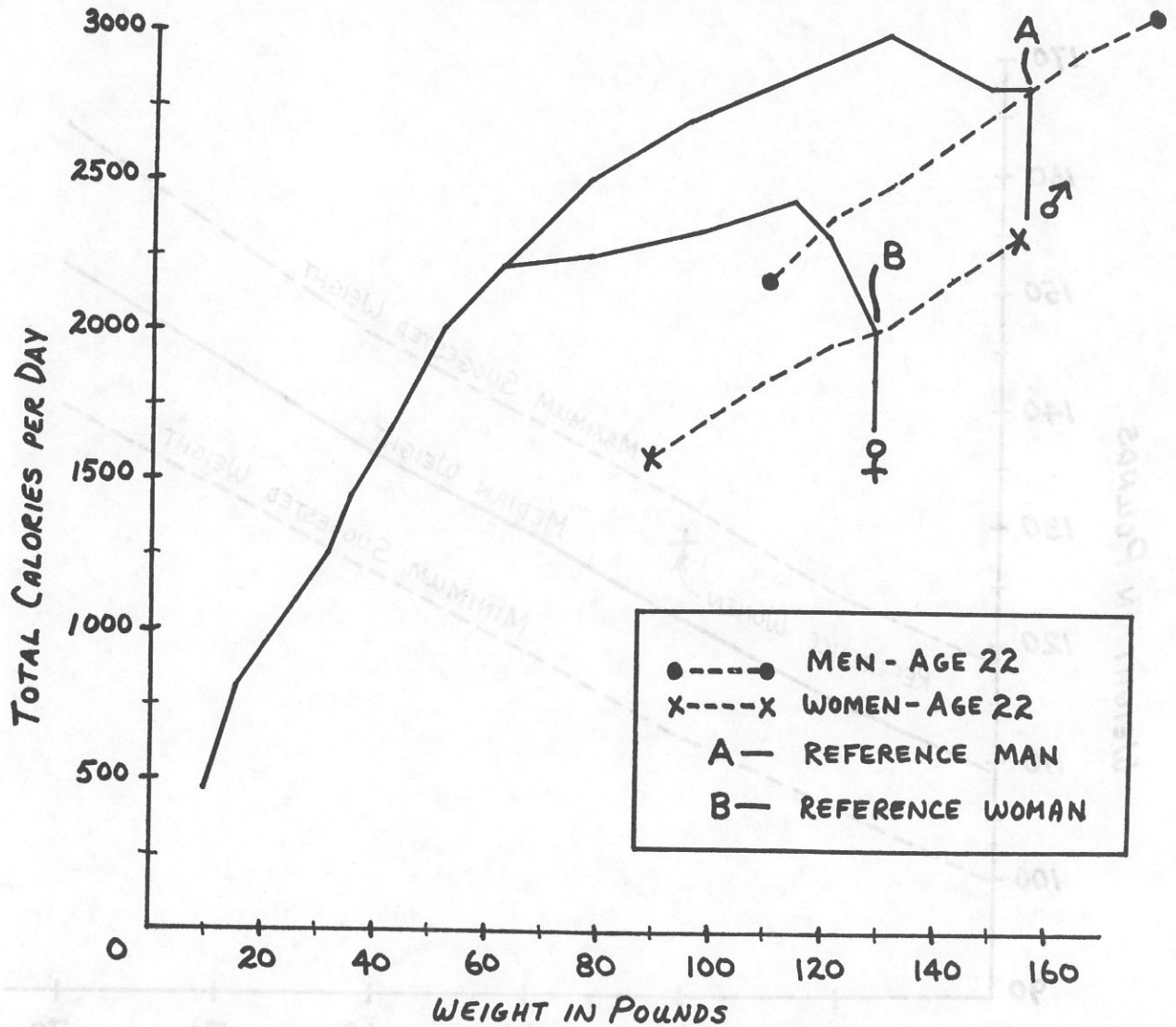
Source: Adapted from National Research Council²⁹

terms of growth rate and body weight in children, and "ideal" body weights in adults. This variability is an important factor for consideration when attempting to interpret recommended allowances for population groups, in terms of individual needs.

Just as energy requirements increase with activity, caloric needs are influenced by body weight. Figure 3

illustrates the change in the National Research Council's recommended caloric allowances, with increase in body weight for men and women. As shown, the recommended daily caloric allowance for the reference man and woman are 2800 Calories and 2000 Calories, respectively.²⁹ Because of the decline in energy requirements after early adulthood (due to a decrease in resting

FIGURE 3
RECOMMENDED CALORIC INTAKE/DAY VS. BODY WEIGHT



Source: Adapted from National Research Council²⁹

metabolic rate and diminished physical activity), caloric recommendations must be adjusted accordingly. The Food and Nutrition Board of the National Research Council proposes the following reductions in caloric intake: 5% between ages 22 and 35; 3% per decade between ages 35 and 55; 5% per decade between ages 55 and 75; and 7% for age 75 and beyond.⁷ This decline in energy requirements is illustrated in Figure 4.

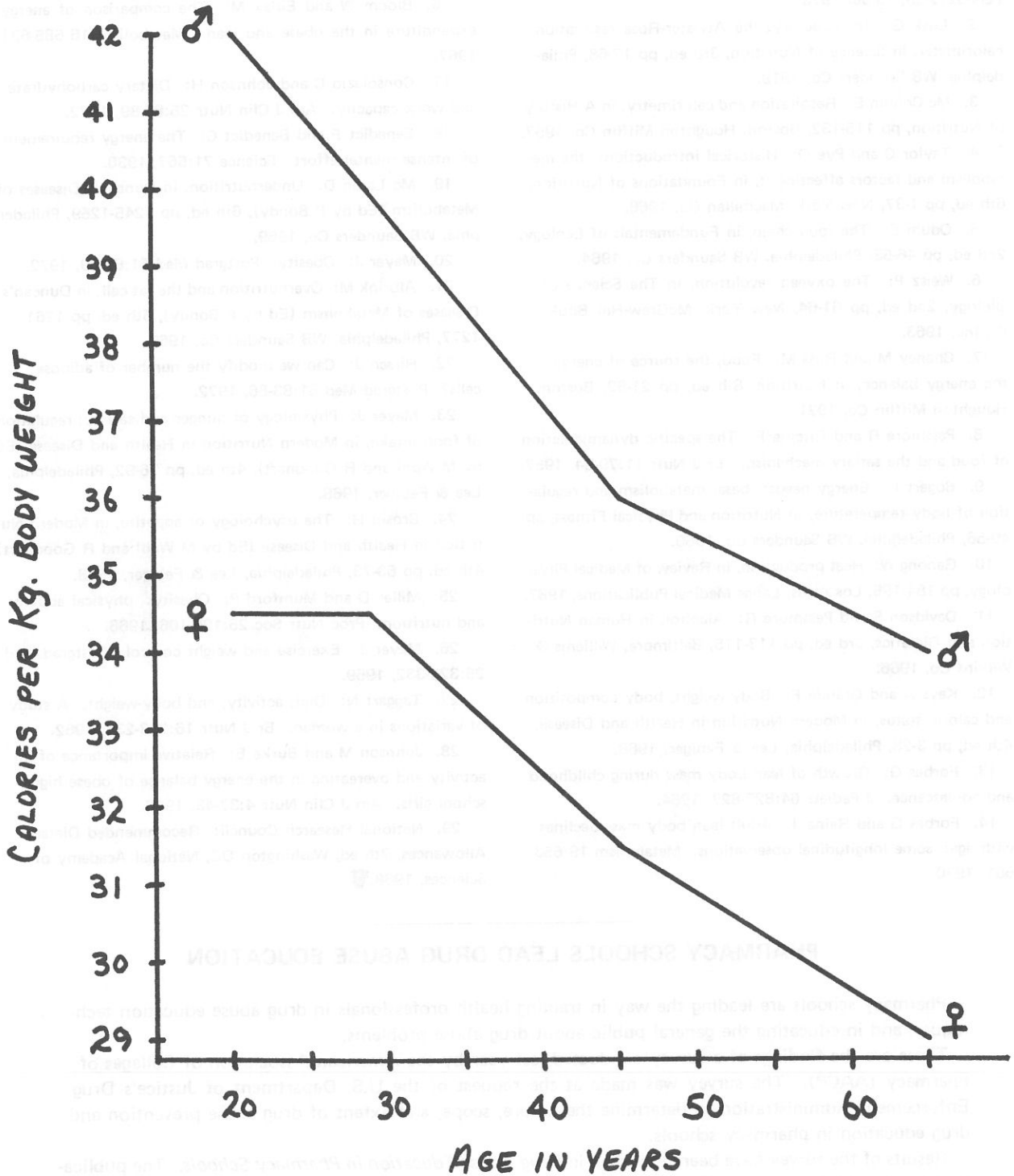
Summary

The human energy balance, and the numerous factors influencing this delicate mechanism must be thoroughly

understood and appreciated when confronting the issue of body-weight control. Although the significance of the relationship between obesity and food intake can not be refuted, the evaluation of all weight-control problems, based exclusively on this relationship, would be an unjust denial of the influence of other operative factors. Medical professionals must be cautious not to oversimplify the etiology of obesity, and not to respond to each case in the same therapeutic manner. The multifactorial nature of the overweight state *must* be recognized and incorporated in the development of appropriate, individualized weight-control regimens.

FIGURE 4

DECLINE IN ENERGY REQUIREMENTS WITH AGE



Source: Adapted from National Research Council²⁹

REFERENCES

1. Bagley D: Weight Control and Physical Appearance of Naval Personnel. Bureau of Naval Personnel, Washington DC, Pers-5222-ab, 13 Jul 1973.
2. Lusk G: Introductory; the Atwater-Rosa respiration calorimeter, in *Science of Nutrition*, 3rd ed, pp 17-68, Philadelphia, WB Saunders Co, 1919.
3. Mc Collum E: Respiration and calorimetry, in *A History of Nutrition*, pp 115-132, Boston, Houghton Mifflin Co, 1957.
4. Taylor C and Pye O: Historical introduction: the metabolism and factors affecting it, in *Foundations of Nutrition*, 6th ed, pp 1-37, New York, Macmillan Co, 1966.
5. Odum E: The food chain, in *Fundamentals of Ecology*, 2nd ed, pp 46-53, Philadelphia, WB Saunders Co, 1964.
6. Weisz P: The oxygen revolution, in *The Science of Biology*, 2nd ed, pp 61-64, New York, McGraw-Hill Book Co Inc, 1963.
7. Chaney M and Ross M: Food, the source of energy; the energy balance, in *Nutrition*, 8th ed, pp 21-62, Boston, Houghton Mifflin Co, 1971.
8. Passmore R and Ritchie F: The specific dynamic action of food and the satiety mechanism. *Br J Nutr* 11:79-84, 1957.
9. Bogert L: Energy needs: basal metabolism and regulation of body temperature, in *Nutrition and Physical Fitness*, pp 40-56, Philadelphia, WB Saunders Co, 1960.
10. Ganong W: Heat production, in *Review of Medical Physiology*, pp 184-185, Los Altos, Lange Medical Publications, 1967.
11. Davidson S and Passmore R: Alcohol, in *Human Nutrition and Dietetics*, 3rd ed, pp 113-115, Baltimore, Williams & Wilkins Co, 1966.
12. Keys A and Grande F: Body weight, body composition and calorie status, in *Modern Nutrition in Health and Disease*, 4th ed, pp 3-28, Philadelphia, Lea & Febiger, 1968.
13. Forbes G: Growth of lean body mass during childhood and adolescence. *J Pediatr* 64:822-827, 1964.
14. Forbes G and Reina J: Adult lean body mass declines with age: some longitudinal observations. *Metabolism* 19:653-661, 1970.
15. Passmore R and Durnin J: Human energy expenditure. *Physiol Rev* 35:801-835, 1955.
16. Bloom W and Eidex M: The comparison of energy expenditure in the obese and lean. *Metabolism* 16:685-691, 1967.
17. Consolazio C and Johnson H: Dietary carbohydrate and work capacity. *Am J Clin Nutr* 25:85-89, 1972.
18. Benedict F and Benedict C: The energy requirement of intense mental effort. *Science* 71:567, 1930.
19. Mc Laren D: Undernutrition, in *Duncan's Diseases of Metabolism* (Ed by P Bondy), 6th ed, pp 1245-1259, Philadelphia, WB Saunders Co, 1969.
20. Mayer J: Obesity. *Postgrad Med* 51:66-69, 1972.
21. Albrink M: Overnutrition and the fat cell, in *Duncan's Diseases of Metabolism* (Ed by P Bondy), 6th ed, pp 1261-1277, Philadelphia, WB Saunders Co, 1969.
22. Hirsch J: Can we modify the number of adipose cells? *Postgrad Med* 51:83-86, 1972.
23. Mayer J: Physiology of hunger and satiety; regulation of food intake, in *Modern Nutrition in Health and Disease* (Ed by M Wohl and R Goodhart), 4th ed, pp 76-92, Philadelphia, Lea & Febiger, 1968.
24. Brosin H: The psychology of appetite, in *Modern Nutrition in Health and Disease* (Ed by M Wohl and R Goodhart), 4th ed, pp 63-73, Philadelphia, Lea & Febiger, 1968.
25. Miller D and Mumford P: Obesity: physical activity and nutrition. *Proc Nutr Soc* 25:100-106, 1966.
26. Mayer J: Exercise and weight control. *Postgrad Med* 25:325-332, 1959.
27. Taggart N: Diet, activity, and body-weight. A study of variations in a woman. *Br J Nutr* 16:223-235, 1962.
28. Johnson M and Burke B: Relative importance of inactivity and overeating in the energy balance of obese high school girls. *Am J Clin Nutr* 4:37-43, 1956.
29. National Research Council: Recommended Dietary Allowances, 7th ed, Washington DC, National Academy of Sciences, 1968.

PHARMACY SCHOOLS LEAD DRUG ABUSE EDUCATION

Pharmacy schools are leading the way in training health professionals in drug abuse education techniques, and in educating the general public about drug abuse problems.

These are the findings of a survey conducted last year by the American Association of Colleges of Pharmacy (AACP). The survey was made at the request of the U.S. Department of Justice's Drug Enforcement Administration to determine the nature, scope, and extent of drug abuse prevention and drug education in pharmacy schools.

Results of the survey have been published in *Drug Abuse Education in Pharmacy Schools*. The publication lists the drug abuse education activities of each of the 55 pharmacy schools that responded to the survey.

Copies of the publication are available from AACP, 8121 Georgia Ave., Silver Spring, Md. 20910. — *AACP News*, 2(2):7, Jan 1974.



RESERVE DRILL PARTICIPATION

To the Editor: In her letter to the Editor which appeared in the Oct 1973 issue of *U.S. Navy Medicine*, CDR O'Brien is correct; in his reply, CAPT Johnson is partly correct.

I was the commanding officer of Medical Company 1-1 Boston when the contributory-support plans were first announced. In getting the details of the plan, I had several telephone contacts with CAPT Johnson's office (BUMED Code 36). When the plan left his office it did read that "Medical Department officers are eligible for these billets." However, by the time BUPERS had cleared it, someone had dropped one word leaving the statement to read, "Medical officers are eligible for these billets." Accordingly, the plan became applicable only to medical officers, and even for them, reception of support at Naval Hospital Boston was less than enthusiastic (except for several who had departed active duty at Naval Hospital Boston, and were personally involved).

CAPT Johnson's reply to CDR O'Brien's letter also confused membership in Medical Companies, and the holding of a contributory-support billet which is in addition to membership in a Medical Company. Each Medical Company is allowed one or more pay billets for administrative purposes, based on the number of members in the Company; these billets are for LCDR, and junior ranks.

Pay billets are certainly desirable, but I might note that I have been in Medical Company 1-1 for 24 years, without a billet. I felt I was contributing to the Navy, and was available to the Navy. My commission says I am a "Reserve Captain in the Medical Service Corps of the U.S. Navy." The Navy cannot afford to segregate

an active and an inactive Navy — we are all part of the Navy!

John T. Evans, Ph.D.
CAPT, MSC, USNR
85 Otis Street,
Newtonville, Mass. 02160.

CDR O'BRIEN REPLIES

To the Editor: I recently was given a copy of the October 1973 issue of *U.S. Navy Medicine* in which you published a paraphrased version of a letter I wrote in April 1973, protesting some very misleading statements in an article by CAPT W.A. Johnson, MC, USN, on page 50 of the March 1973 issue. The article concerned Reserve Drill Participation, and in particular, the program in support of certain naval hospitals by Medical Department officers who are members of Medical Companies.

When BUMED originated this program, pay billet allocations for participating Medical Department officers were requested from BUPERS. However, pay billets were approved for *Medical* officers only. I have correspondence from CAPT Johnson dated more than nine months before the publication of the article in the March 1973 issue, announcing the allocation of ten pay billets to Medical Companies for Medical officers only. MSC and NC officers could participate in a *nonpay* status. In my contacts with other Medical Companies, I cannot locate any NC or MSC officer who was, or is in a pay status under this program.

CAPT Johnson's reply to my letter does not clarify the issue. I would like to point out that the original

article does indeed mention pay billets in several sentences in the left column on page 50, and indeed it was the misleading impression given concerning the availability of these that I sought to correct. The article conveyed the impression that pay billets were available to Medical Department officers, although CAPT Johnson knew otherwise.

In the interest of truth and improved communication, it should be known by MSC and NC officers being released from active duty, that there are no pay billets available to them. The only NC and MSC officers in pay billets are those who, in very rare circumstances, are filling a line officer's billet; or those who are CO or XO of a Medical Company which is large enough to be allocated pay billets.

CDR Ann B. O'Brien, NC, USNR-R,
CO, Naval Reserve Medical Co. 3-4,
Whitestone, New York.

DELIRIUM . . . DELIRIUM . . . DELIRIUM

To the Editor: The word delirium is *mis-spelled* some six times in the article entitled "The Alcohol Withdrawal Syndrome: Diagnosis and Treatment," which appeared in *U.S. Navy Medicine* 62 (6):17-19, Dec 1973.

CAPT John F. McMullin, MC, USN (Ret.)
4132-10th Street Medical Square,
Riverside, Calif. 92501.

(CAPT McMullin is absolutely right — but the word was *misspelled*. — Ed.)

WEIGHT CONTROL NOT ENOUGH

To the Editor: The Surgeon General's interest and support of VADM Bagley's concern over obesity in the Navy (See "Notes and Announcements," *U.S. Navy Medicine* 62 [4]:45, Oct 1973) is commendable.

But is it enough for Medical Department personnel

to discuss weight control, at any level, without strongly advocating an active physical fitness program as outlined in OPNAVINST 1500.22B of 23 Apr 1973? More of us must begin to participate in the types of physical activities that produce true cardiovascular benefits. By setting examples, perhaps the Medical Department can help prove to the rest of the Navy that there is more to health than the absence of disease.

LT Douglas W. Call, MSC, USN,
Naval Aerospace Recovery Facility,
El Centro, Calif. 92243.

PROFESSIONAL-MEETING ATTENDANCE

To the Editor: CAPT Lowery's concern about the lack of the uniform at clinical and academic meetings (Letters to the Editor, *U.S. Navy Medicine* 62 [6]:40, Dec 1973) is understandable. Of even more concern to me is the lack of any Navy participation at all.

At the recent annual meeting of the American Academy of Family Physicians (AAFP) in Denver, Colo., three Navy uniforms were seen among the participants. There were 9,000 people attending the session, as the AAFP is the second largest medical organization, next to the AMA.

A military chapter is being established in the AAFP, on an equal basis with the state chapters. When the organizational meeting was held, these same three physician attendees (myself, and two residents) were the only Navy representatives present amidst a sea of Army green and Air Force blue. Where were the representatives of Family Practice Programs? Where were the BUMED representatives? Where were other Navy Family Physicians? (Are there any?)

In the same issue of *U.S. Navy Medicine*, VADM Custis mentions the "second-rate" impression some civilians have of military physicians. This certainly will not be true of the Navy in the AAFP. To be "second-rate," you at least have to be there to compete.

LT W.D. Hakkarinen, MC, USNR,
Nav Hosp Camp Lejeune, N.C. 28542.



THE FAMILY PRACTITIONER SPECIALIST

There is a disturbing failure on the part of many Navy physicians to realize that family practitioners are recognized specialists, and do not represent another variety of GMO (general medical officer). The family practitioner is a fully trained specialist who has devoted a minimum of three years to graduate medical education; he is highly overqualified for the position of a GMO. He is, and must be treated as a specialist in every sense of the word; merely changing the sign over the walk-in clinic door to read "Family Practice" clinic makes a travesty of this concept. In order to fully realize the tremendous potential of this specialty group, every effort must be made to understand and accept the concept of family practice within the Navy. Such an understanding will enhance, rather than detract from, our many efforts to provide comprehensive care to all eligible beneficiaries.

Emphasis must be placed on the utilization of these highly trained specialists as family practitioners, *not as general medical officers*. Every effort should be made to furnish them with patient-care areas and supportive personnel, to make it possible for them to practice effectively. Family practice physicians should be allowed to develop a patient population compatible with the limitations of comprehensive care. Patient load, record keeping, appointment systems, and working conditions must be so tailored as to allow patients to identify with the family practitioner. This will permit the establishment of a physician-patient relationship mutually rewarding to all. Hospital staffs should make every effort to foster the concept of comprehensive and continuing medical care, by making it possible for the family practitioner to care for his patients when

hospitalized, supported by other specialty groups whenever necessary or appropriate.

In family practitioners we have a highly trained, capable, and dedicated group of specialists who are anxious to play their proper role, in contributing to our efforts to continue the high level of care which our patient population deserves and expects. For these respected physician specialists we must provide a suitable environment wherein they can practice medicine, devoted to a broad clinical and sociologic overview of patients' medical needs. All of us must welcome this capability, making every effort to support the concept for which these qualified specialists were trained. — BUMED, Code 1. 🌿

NEW ASD(H&E) DR. JAMES R. COWAN

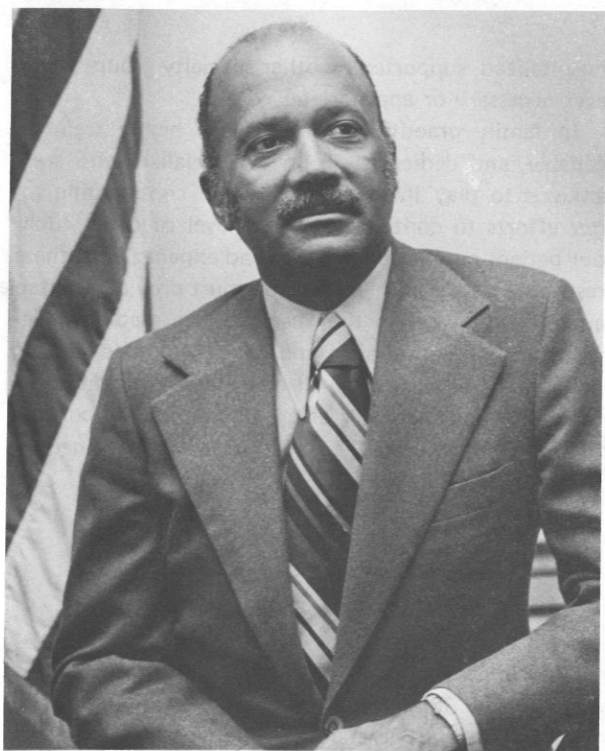
Dr. James R. Cowan, former Commissioner of the New Jersey State Department of Health, has been named Assistant Secretary of Defense for Health and Environment. He succeeds Dr. Richard S. Wilbur, who resigned 1 Sept 1973.

Dr. Cowan was born in Washington, D.C., on 21 Oct 1916. He received his B.S. degree from Howard University, Washington, D.C., in 1937; his M.A. degree from Fisk University, Nashville, Tenn., in 1940; and his M.D. degree from Meharry Medical College, Nashville, in 1944. From 1944 to 1945 he interned at Harlem Hospital, N.Y. He was a resident in surgery at Freedman's Hospital, Washington, D.C. (1945-1948), and a fellow in surgery at Howard University (1948-1950).

From 1950 to 1953 Dr. Cowan served on active duty in the Medical Corps of the U.S. Army, with assign-

ments as a battalion surgeon in Frankfurt, Germany, and as chief of surgery at Regensburg, Germany. After discharge from the Army in 1953, Dr. Cowan moved to East Orange, N.J., where he maintained a private practice for the next 17 years. In 1970 he was named Commissioner of the New Jersey State Department of Health.

Dr. Cowan has served as a member of the Cost of Living Council's Committee on the Health Services Industry, and the National Health Resources Advisory Committee; and as chairman of the Social Security Administration's Health Insurance Benefits Advisory Council. He has also been a trustee of the New Jersey College of Medicine and Dentistry, and chairman of the New Jersey Interdepartmental Committee on Narcotic and Drug Abuse Control.



DEFENSE APPOINTEE.—Dr. James R. Cowan has been named Assistant Secretary of Defense for Health and Environment. Dr. Cowan was formerly Commissioner of the New Jersey State Department of Health.

RADM ALENE B. DUERK REAPPOINTED DIRECTOR, NAVY NURSE CORPS

RADM Alene B. Duerk, NC, USN, the highest ranking woman in the Navy, has been reappointed Director of the Navy Nurse Corps for an additional 14 months. A veteran of 30 years of military service, she will



DIRECTOR REAPPOINTED.—RADM Alene B. Duerk, NC, USN, the highest ranking woman in the U.S. Navy, has been reappointed Director of the Navy Nurse Corps for an additional 14 months. She will continue to direct the activities of 2,600 active-duty Navy nurses until June 1975.

continue to direct the activities of active-duty Navy nurses until June 1975.

The 53-year-old native of Defiance, Ohio, made Navy history in June 1972 when she became the first and only woman to be promoted to the rank of rear admiral. At the time of her promotion, then Secretary of Defense Melvin Laird recommended that her term as Nurse Corps director be extended to allow her to serve a full three-year tour in flag grade.

RADM Duerk became Director of the Navy Nurse Corps in May 1970. Since then the number of Navy nurses has increased by 400, and the retention rate has more than doubled. There are now 2,600 nurses serving on active duty in the Navy.

Under the Admiral's direction, Navy nurses have expanded into new nursing fields. Pediatric and Ob/Gyn nurse practitioners were introduced into Naval medical facilities in 1972. There are now 15 pediatric nurse practitioners on active duty, with three more in training. Twelve Navy nurses have graduated from the Ob/Gyn Nurse Practitioner Program at Naval Hospital Portsmouth, Va., and another five are currently being trained.

The first three family nurse practitioners were assigned to Naval medical facilities in 1973. Two Navy nurses are currently being trained as nurse midwives.

RADM Duerk received her nursing diploma from Toledo (Ohio) Hospital School of Nursing in 1941, and her bachelor of science degree from Western Reserve University, Cleveland, Ohio, in 1948.

The Admiral joined the Navy as an ensign in 1943, and served as a ward nurse in naval hospitals in Portsmouth, Va., and Bethesda, Md. Toward the end of World War II, she cared for sick and wounded servicemen on the USS *Benevolence*, one of the first American hospital ships to enter Japan during the Occupation.

After the war, RADM Duerk turned to civilian nursing. She was recalled to active naval service in 1951. Since then she has served in a number of nursing and administrative positions in Naval medical facilities in the U.S., the Republic of the Philippines, and Japan.

RADM Duerk lives in Alexandria, Va. She is the daughter of Mrs. Herman Zachrich, of Holgate, Ohio.—Code 32, BUMED. ☙

BUMED COMPTROLLER RETIRES: MR. HICKEY LAUDED

After more than 27 years of loyal and exceptionally meritorious service to the Medical Department of the U.S. Navy, Mr. Thomas Joseph Hickey retired from Federal service as of April 1974. In recognition of his achievements and distinguished career as Comptroller of the Bureau of Medicine and Surgery, and Financial Management Advisor to the Medical Department of the U.S. Navy, Mr. Hickey received the Navy Civilian Career Achievement Award, granted in 1974 by Secretary of the Navy John W. Warner; and the Surgeon General's Certificate of Merit.



Thomas Joseph Hickey

During the tenure of seven consecutive Navy Surgeons General under whom he served, Mr. Hickey received 26 superior performance awards. He also received the Navy Distinguished Civilian Service Award, granted in 1969 by Secretary of the Navy Paul R. Ignatius.

In the citation that accompanied the Certificate of Merit recently conferred by the Surgeon General, Mr. Hickey was praised for his superb qualities of leadership, unexcelled service and administrative ability, strength of character, conscientiousness, professional competence, and judgment. ☙

NEW OFFICER FITNESS REPORT

A new officer fitness report was implemented Navy-wide on 1 Jan 1974. The report is designed: (a) to better evaluate an officer's capability as a professional leader and manager of people; (b) to provide a basis for an appraisal discussion to improve officer development, and; (c) to incorporate an optical character recognition (OCR)/Record Copy of the Report on the Fitness of Officers for use in the reporting and filing system. While the new fitness report system is more complex than the one previously used, a pilot program conducted in 1973 by the Center for Naval Analyses showed that its merits far outweigh the increased complexity.

The expanded fitness report system utilizes a two-part format: the Appraisal Worksheet (utilized and retained by the reporting senior), and the Record Copy (sent to the Bureau of Naval Personnel) in OCR format. The Appraisal Worksheet is designed to assist in the preparation of the OCR/Record Copy and to provide guidelines for the appraisal discussion between the reporting senior and the officer being evaluated. The OCR/Record Copy is a compilation of the marks from the worksheet, including a section for comments.

The revised fitness report system provides for evaluation of an officer with respect to five major areas: (a) specific aspects of performance, (b) warfare specialty skills, (c) subspecialty performance, (d) mission contribution, and (e) personal traits. Items (b) and (c) above, and six "personal traits" have been carried over from the previously-used "green" form, as have the "Trend of Performance" and "Desirability" sections. A new section also provides for specific recommendations regarding promotion.

A major change from the previous form is the type of marking scale used. The adjectival anchors such as "outstanding" and "excellent" have been replaced with numerical anchors such as "top 5%" and "top 10%."

This numerical scale (also used on chief petty officer evaluation forms) has proven to have more validity as an evaluation index than the adjectival marking scale.

In studying the Appraisal Worksheet, care should be taken not to imply more importance to one section than to another due simply to its length. The OCR/Record Copy will not reflect differences in length to the same degree as does the Appraisal Worksheet.

While the new fitness report system allows for electronic scanning and filing, this does not mean that the Navy is changing to selection, promotion, or assignment by computer. Selection and assignment practices will continue as they were, that is, based upon board and assignment-officer decisions made after review of fitness reports contained in the individual officer's fitness report jacket filed in BUPERS. The policy of allowing officers to review their fitness reports whenever they are in the Washington area will also continue.

BUPERSINST 1611.12D of 16 Nov 1973 contains detailed instructions for the preparation of the new fitness report.—*The Officer Personnel Newsletter* 18(1): 10-12, Aug 1973. 🍀

MEDLINE TERMINALS APPROVED FOR FIVE MEDICAL FACILITIES

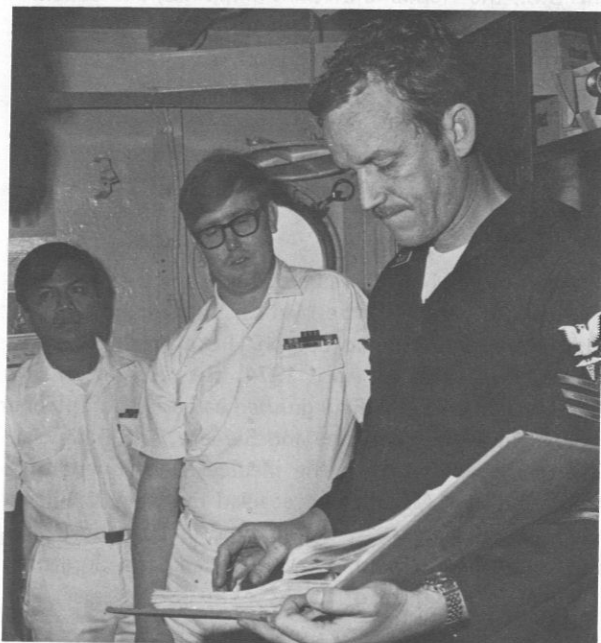
Thermal-type printing terminals for use with the MEDLINE (MEDLARS On-Line) system will soon be available in five Naval medical centers. Accrued purchase option credits will be used to buy the terminal currently being rented by the E.R. Stitt Library, Naval Medical Training Institute, NMMC, Bethesda, Md. Pending awarding of a new contract to the manufacturer, Texas Instruments, terminals will also be installed at Naval Regional Medical Centers Oakland, Philadelphia, San Diego, and Portsmouth, Va.—*Naval Medical Data Services Center Notes*, No. 15, 1 Mar 1974. 🍀

PROSPECTIVE INDEPENDENT-DUTY HOSPITAL CORPSMEN TOUR SHIP

Seven prospective independent-duty hospital corpsmen recently toured a Service Group ONE Ship, the USS *Tolovana* (AO-64), as guests of the Commanding Officer, CDR John R. Lund, USN and the ship's medical representative, HM1 John Presley. USS *Tolovana* which has no medical officer assigned, typifies the ships to which independent-duty hospital corpsmen are assigned. Such ships often operate in remote areas where a medical officer is not readily available,

making it imperative that the corpsman be well trained in his duties.

In order to update and properly prepare corpsmen being assigned to independent duty, a ten-day refresher course has been developed at the Hospital Corps School, San Diego, Calif. The course is coordinated by senior instructor HMCM Alan Timmerman, and is designed to acquaint the student with the most current trends in medical practice, medical administration, and medical supply, and to provide a general review of shipboard, battle, and personnel-casualty-control organization. This program is one of a number of programs instituted by the Navy Surgeon General to upgrade and enhance the medical readiness posture of the Fleet.—PAO, Commander Service Group ONE, FPO San Francisco 96601.



FIRST-HAND LOOK.—HM1 John Presley (right), medical representative on the USS *Tolovana*, briefs prospective independent-duty hospital corpsmen on the ship's first-aid training program, and maintenance of training records. 🍀

TWO NEW COLLEGE PROGRAMS

New improvements in off-duty college education programs for service people were recently discussed by Deputy Assistant Secretary of Defense M. Richard Rose, over the worldwide facilities of the American Forces Radio and Television Service. While the discussion was focused on college programs, innovations in obtaining a high-school diploma were also addressed.

Dr. Rose first outlined the two principal methods which Service persons use to defray college expenses: (1) using GI Bill entitlements, now available after only six months of active duty; (2) enrolling in Service tuition-assistance programs that pay 75% of tuition costs.

Asked how the new Serviceman's Opportunity College (SOC) program works, the Pentagon education official said, "The Serviceman's Opportunity College is really a consortium of colleges across the country which accept a common criteria for membership in that consortium."

Some 125 two-year community and junior colleges in all parts of the country currently participate in the SOC program. Close to 200 four-year colleges and universities have applied to SOC, to participate in that part of the program. These institutions agree to a criteria favorable to education for Service men and women. Key points include these considerations:

- Liberal entrance requirements for men and women in uniform because of their maturity;
- Flexible attendance schedules, recognizing that military duty often requires classroom absences;
- Accreditation of Service schools and work experience into college credits, and;
- Liberal college-credit transfer and waiving of residency requirements by member institution, recognizing that Armed Forces members cannot hope to complete long-term college programs at one single institution.

How does the system for accrediting Service work experience and schools into college credit actually work? The Commission on Accreditation Service of the American Council on Education produces a guide that links work and school experience to specific credit hours. SOC institutions agree to grant appropriate credit based on the guide's recommendations. The procedure works to the advantage of the experienced NCO who, by reaching his rank, has attended many Service schools and has a solid employment record.

"We feel the best technical training in the world is being given in the Armed Forces; educators are starting to recognize that and want to give the person the appropriate credit," Dr. Rose said.

Dr. Rose described the PREP or PredischARGE Education Program as a misnomer, because any person is eligible after only 180 days of active duty. The Pentagon education official pointed out that PREP is funded by the Veterans Administration, and is aimed at obtaining an actual high-school diploma at civilian institutions. In addition, Service personnel with high-school diplomas may use the PREP program for taking refresher courses in preparation for college study.

How does education rate with men and women in today's All-Volunteer Force compared to "draft-era"

counterparts? Dr. Rose believes that education, which always rated high, now rates even higher. He regards education as a definite incentive for retention and enlistment.

The value systems of most young people today are responsive to opportunities for individual career development, he indicated. Improved educational opportunities in the military services represent opportunities that speak for themselves. ☛

INTEGRATION OF NAVY WOMEN

Over the past year, new initiatives have been taken to provide equal opportunity for women to contribute their extensive talents, and to achieve full professional status in an all-volunteer Navy environment.

Programs are currently underway to expand the role of Navy women significantly, and to complete the integration process. In doing this, it became apparent that women could not be accorded the equality they sought and deserved, while maintaining any mechanisms for special treatment. Further, the Navy could not convincingly move in the proper direction while at the same time retaining organizational structures which perpetuate the artificial grouping of Navy women as a separate entity.

To assist in eliminating these contradictions, all functions of the office of Assistant Chief of Naval Personnel (ACNP) for Women have been transferred to the cognizant functional offices within the Bureau of Naval Personnel, and other commands (NAVCUITCOM, NAVTRACOM, etc). This transfer of functions was completed in March 1973, at which time the office of ACNP for Women was disestablished.

In order to ensure coordination of policy relating to women, a central point of contact has now been established under the direction of the ADCNO/ACNP for Human Goals, OP-01P/Pers-6. Accordingly, the Program Review Branch of the Equal Opportunity Division (Pers-61, phone OX4-1430, AUTOVON 224-1430) has been tasked to coordinate and monitor implementation of ongoing initiatives, and equal opportunity programs for Navy women; this office will be responsive to any inquiries regarding these areas of interest.—*The Officer Personnel Newsletter*, 18(1):7, Aug 1973. ☛

MEDICAL EDUCATION COSTS SURVEYED

The total cost for a four-year education in an American medical school can run as high as \$104,000, the Association of American Medical Colleges (AAMC)

revealed recently. Yearly costs of education at 12 American medical schools surveyed by the AAMC range from \$16,000 to \$26,400. Students pay about \$2,200 a year in tuition, while the federal government supplies approximately \$1,700 a year per student. Remaining costs must be covered by state, local, private, or other federal funds.

The AAMC made this survey of medical education costs in an effort to determine how physician training should be financed.—*American Osteopathic Association Newsbriefs* 1(14):4, 15 Nov 1973. ☞

JUST BROWSING . . .

JELLYFISH STINGS

Commercial meat-tenderizer products containing a proteolytic enzyme such as papain (a derivative of the papaya) are reported to be of value in the treatment of jellyfish stings.—*Pacific Health Bulletin* 59:1, Nov 1973, Navy Environmental and Preventive Medicine Unit (EPMU) No. 6.

SALABRASION REMOVAL OF TATTOO

Following wash-and-shave prep, the tattoo area is cleansed with alcohol and injected with local anesthetic (*without* a vasoconstrictor). After removing the keratin skin layer with an electrically-driven felt polishing pad, rub the area for 3-5 minutes with a sterile gauze pad which has been moistened in saline and dipped into table salt. The treated area should become deep red and will not blanch on pressure. The area is thereafter protected (especially from the sun) with dry sterile dressings, and a 10-day course of oral tetracycline (250 mg q6h) is recommended. The dry crust usually separates within 10-15 days, and healing should be complete after six weeks. Third-degree burns with excessive scarring and hyperpigmentation can complicate the procedure, and a need for repeat treatment may foreshadow a less satisfactory end result. So reported a San Diego plastic surgeon, Gary H. Manchester, M.D., who has treated 37 tattoos.—*JAMA* 227(6):606-607, Feb 11, 1974.

RECOMMENDED GONORRHEA DIAGNOSIS AND TREATMENT SCHEDULE FOR WESTPAC

1. Gonorrhea

A. Diagnosis:

(1) Males

(a) Gram negative intracellular diplococci found on examination of discharge.

(b) Growth of gram-negative, oxidase-positive diplococci on Thayer-Martin media.

NOTE: A diagnosis of postgonococcal urethritis should not be made without a negative culture, or at least a negative gram stain.

(2) Females

(a) Growth of gram-negative, oxidase-positive diplococci on Thayer-Martin media. Specimen obtained from cervix.

(b) A history of timely contact with a diagnosed male patient.

B. Treatment:

(1) In the absence of penicillin allergy, both men and women should receive:

(a) Aqueous procaine penicillin G, 4.8 million units given intramuscularly (IM) divided into at least two different injection sites, given at least 30 minutes after oral administration of 1 gram probenecid.

(2) When penicillin is contraindicated or when it proves ineffective, the patient should receive spectinomycin:

(a) Men — 2 gm in one IM injection

(b) Women — 4 gm in one IM injection

(3) (Less Preferably) Tetracycline HCL, 1.5 gm initially, followed by 0.5 gm four times a day for four days. Patient should be cautioned against alcohol and milk ingestion, and sexual activity, while taking this drug.

C. Follow-up

(1) In order to identify treatment failures, follow-up urethral cultures should be obtained from males seven days after completion of treatment; cervical and rectal cultures should be obtained from females 7-14 days after completion of treatment.

(2) Post-gonococcal urethritis can be treated with tetracycline, 0.5 gm orally, four times daily for 10 days (or 21 days if 10 days doesn't work). The long-acting tetracyclines, such as doxycycline, are also effective.

(3) All gonorrhea patients should have a serologic test for syphilis at the time of diagnosis. Patients receiving the recommended penicillin schedule need not have a follow-up serologic test for syphilis. Other patients should receive a repeat monthly serologic test for four months following treatment.

In WESTPAC, *N. gonorrhoeae* strains seem more resistant to antibiotics, but penicillin is still the drug of choice in gonorrhea patients without penicillin allergy. A cure rate of approximately 95% is expected to follow the administration of 4.8 million units injected 30 minutes after a one-gram oral dose of probenecid. For patients who present a history of penicillin allergy, in WESTPAC, the alternate drug of choice is spectinomycin, 2 gm IM.

Unlike the penicillin regimen, which aborts incubating syphilis, spectinomycin is ineffective against syphilis,

and also against pharyngeal gonococcal infection. If other methods are ineffective or unavailable, other useful medications are ampicillin, 3.5 gm daily, given 30 minutes after Benemid or kanamycin, 2 gm IM.

Check the patient for cure within a week of treatment; include culture if possible. A gram stain smear may be positive (? dead organisms) for a week or two after successful treatment and therefore, if positive, should not be regarded as evidence of treatment failure. If a positive culture is obtained on follow-up examination, however, reinfection is a likely possibility and repeat treatment may well be indicated.—Pacific Health Bulletin 61:2-6, Jan 1974, Navy Environmental and Preventive Medicine Unit (EPMU) No. 6.

COUGH AIR VELOCITIES

In "Critique & Cavi" by Contributing Editor George X. Trimble, M.D. of *JAMA*, it is noted that "... the air stream velocity of an American cough is about Mach 1 or the speed of sound (760 mph at sea level) ... whereas the air velocity of a British cough is about 200 mph." Dr. Trimble suggests that his selected data herein reflect the tendency for Americans to be "explosive," and the reverse tendency for the British to be "discreet."—*JAMA* 227(9):1046, 4 Mar 1974.

PHYSICIANS IN HOSPITAL GOVERNMENT

In his inaugural address at the annual meeting, the new chairman of the board of the American Hospital Association (AHA), Horace M. Cardwell recommended increased participation by physicians in the governing of hospitals.

For too long, he contended, in too many hospitals, doctors are not represented in the important decision-making committees. Both the AHA and the AMA, he noted, advocate such representation if hospitals are to function effectively.—*U.S. MEDICINE* 10(5):12, 1 Mar 1974. ☸

AMERICAN SOCIETY FOR MEDICAL TECHNOLOGY — NEW ORLEANS MEETING

The 42nd annual meeting and exhibit of the American Society for Medical Technology (ASMT) will be held 23-28 June 1974 in New Orleans, La.

All Naval personnel who are working in clinical and research laboratories are invited to attend this meeting, which will feature many workshops, scientific sessions and a large exhibit.

For additional information and registration, write to the ASMT at Suite 200, 5555 West Loop South, Bellaire, Tex. 77401.—LT John P. Smith, MSC, USNR-R; President-elect ASMT, 2713 N. Pershing Ct., Wichita, Kans. 67220. ☸

OFFICIAL INSTRUCTIONS AND DIRECTIVES

BUMEDINST 6760.1 of 10 Oct 1973

Subj: Medical X-rays; standardized procedures and terminal digit-SSN filing system for

This instruction prescribes a standard filing system for medical (diagnostic) X-rays of military personnel and their dependents that is based on the Social Security number (SSN) of the sponsor, and uses specialized color-coded, terminal digit, X-ray film jackets. The instruction pertains to medical X-rays taken incident to physical examination, diagnosis, care, and treatment of patients in naval medical facilities. Forms NAVMED 6760/0-9 will be used for the new filing system.

The terminal digit, color-coded method of filing has proved the most efficient for handling large volumes of records with high frequency of reference. Forms are filed in file sections according to the last two digits of the sponsor's SSN; they are color coded to reflect the next to last digit of the SSN. Colored cellophane tape is placed on scales along the edge of the form to indicate the terminal digit of the SSN, and the date when the X-ray should be discarded.

Forms NAVMED 6760/0-9 will be placed in authorized stock points of the Navy Supply System at Charleston, S.C.; Norfolk, Va.; Philadelphia, Pa.; San Diego, Calif.; and Oakland, Calif. Latest information indicates that delivery of the jackets will begin by April 1974, depending upon the availability of paper. A BUMED Notice will be issued near the time the forms become available, informing addressees of the delivery date, and providing procedures and guidance for ordering forms from appropriate stock points.

BUMEDNOTE 6270 of 13 Nov 73

Subj: Spray Adhesives; hazards of

This notice warns of the hazards presented by the use of certain spray adhesives. Research findings indicate a strong causal link between exposure of individuals to these adhesives and the potential for chromosomal damage in the person exposed, which could lead to

severe genetic birth defects in children subsequently born to the exposed person. The specific chemical compound which may be responsible for the chromosomal damage has not as yet been identified. Pending such identification, all spray adhesives having a chemical composition similar to those implicated in the original research are considered suspect and are included in the ban.

The use of the following spray adhesives is prohibited at all Naval activities:

Spray adhesives manufactured by Minnesota Mining and Manufacturing Co., St. Paul, Minn.

Foil Art Adhesive (distributed by Decorator Crafts, Inc., Oklahoma City, Okla.)

Scotch Brand Spray-Ment Adhesive

3M Brand Spray Adhesive 77

Sears Multi-Purpose Spray Adhesive (sold by Sears, Roebuck & Co., Chicago, Ill.)

Scotch Brand Multi-Purpose Spray Adhesive

Scotch-Grip Brand Floral Adhesive 77

3M Brand Shipping Mate Palletizing Adhesive

3M Brand Spray Trim Adhesive

Tuff-Bond Spray-Hesive (distributed by Goodloe E. Moore, Inc., Danville, Ill.)

Bear Brand Spray Trim Adhesive (distributed by Norton Co., Troy, N.Y.)

Tri-Chem Spray Mist Adhesive — only that distributed from 1 Oct 1968 through 31 Dec 1969 in 11-oz cans (distributed by Tri-Chem Inc., Belleville, N.J.)

Spray adhesives manufactured by Borden, Inc., Columbus, Ohio, and New York, N.Y.

Krylon Spray Adhesive

Marshall's Photo-Mount Spray Adhesive (distributed by John G. Marshall Mfg. Co., Brooklyn, N.Y.)

These spray adhesives are used in arts and crafts hobbies, photograph mounting, and floral arrangements, as well as for industrial purposes. They may be found in station hobby shops and exchanges, in the home, and in industrial assembly areas.

Exchanges and hobby shops should check their stocks for the banned spray adhesives and if found, remove them from sale. Navy personnel are advised not to purchase any of the banned spray adhesives for their personal use. ☸

SECRETARY OF NAVY

URGES ALL TO VOTE

In 1974, Americans again have the opportunity to choose from among their fellow citizens those men and women who will guide the country through the next few years. The call to the voting booth cannot be ignored if we hope to preserve our American way of life.

Secretary of the Navy John W. Warner, concerned that all Navy personnel exercise their right to vote, has issued the following message to all hands:

"Voting is the cornerstone of our democracy. Every eligible person is strongly encouraged to discharge his or her first duty in this election year. To those who will be eligible to vote for the first time, I urge you to let your voice be heard. To those who were previously eligible to vote but neglected to do so, resolve this year to join your fellow citizens in the electoral process. To those who have consistently exercised their responsibility of citizenship, assure that our democratic rights are preserved.

"Voting is an important means of participation in our governmental process. Every eligible person covered by the Federal Voting Assistance Act can exercise his Constitutional right by exercising and voting by absentee ballot. Persons under the provisions of the Act are: Armed Forces personnel and their eligible spouses and dependents; Merchant Marine personnel and their eligible spouses and dependents; civilian employees of the Federal Government who are serving overseas, and their eligible spouses and dependents; non-federally employed U.S. citizens temporarily residing overseas.

"All fifty states have enacted measures to ease absentee voting procedures and requirements. A forthcoming notice will announce the details of each state's voting requirements and voting dates. Timely attention should be given to those states which require registration before a request for ballot for either a primary or general election will be honored. Primary elections begin with the State of Illinois on 19 March and end with the Hawaii primary on 5 October 1974. The general election will be held on 5 November 1974. A small number of states will be holding special elections to fill existing Congressional vacancies.

"Intelligent informed voting is one of the most precious privileges and important duties of a free citizen in a free country. Vote.

John W. Warner
Secretary of the Navy" ☸

UNITED STATES NAVY MEDICINE

CORRESPONDENCE AND CONTRIBUTIONS from the field are welcomed and will be published as space permits, subject to editing and possible abridgment. All material should be submitted to the Editor, *U.S. NAVY MEDICINE*, Code 18, Bureau of Medicine and Surgery, Washington, D.C. 20372.

NOTICES should be received not later than the third day of the month preceding the desired month of publication.

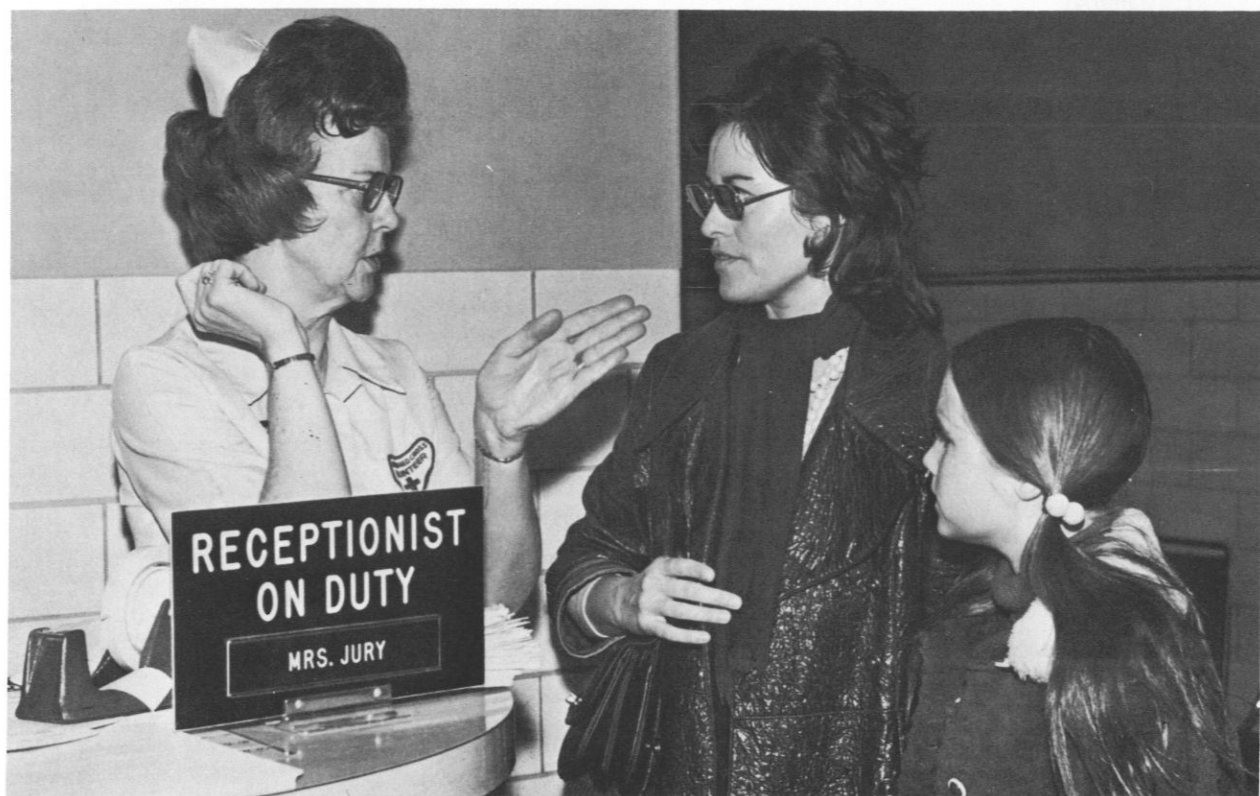
PROFESSIONAL PAPERS AND ARTICLES should be typewritten on one side of the paper, double spaced, with liberal margins. Original and one carbon copy are required. Generic names of drugs are preferred. If the author's present affiliation differs from that under which the reported work was done, both should be given. Unless otherwise indicated, it will be assumed that the article presented has not been previously printed or delivered elsewhere. Papers which have been delivered or printed elsewhere, covered by copyright, cannot be reprinted in *NAVY MEDICINE* without the written permission of the author(s) and copyright holder. It is the responsibility of the author(s) to inform *U.S. NAVY MEDICINE* when the material submitted has been previously used or copyrighted. In selecting manuscripts for publication in *NAVY MEDICINE*, preference is given to original articles.

ILLUSTRATIONS are acceptable when they substantially contribute to the understanding of the basic material. Only distinct, glossy, black and white **PHOTOGRAPHS** which are functional can be printed. Prints should not be mounted, stapled, clipped or otherwise deformed and can be marked lightly on the back with the figure number. Legends should be typed consecutively on a separate paper with the indicated figures; credits for the photography may also be included. Identities of patients should be masked. **DRAWINGS, TABLES AND GRAPHS** should be minimal in number and properly labeled. They should be neatly done in heavy black ink on white paper, one to a page.

SUGGESTIONS are invited concerning *U.S. NAVY MEDICINE*, its content and form.

U.S. NAVAL PUBLICATIONS and FORMS CENTER
ATTN: CODE 306
5801 Tabor Avenue
Philadelphia, Pa. 19120
Official Business

POSTAGE AND FEES PAID
DEPARTMENT OF THE NAVY
DoD-316



TURN LEFT AT THE WATER FOUNTAIN.—Red Cross volunteers man the reception desks of many Navy medical facilities and deserve a hearty "Well done," especially during National Volunteer Week, April 21-27. Here Mrs. Arlene Jury directs a patient to one of the National Naval Medical Center's outpatient clinics.

U.S. NAVY MEDICINE